Please read this manual carefully before operating your set and retain it for future reference. Write the model number and serial number from the label on the back cabinet on the front or back of this manual.

CAUTION - CLASS 1M VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS

ENERGY STAR is a set of power-saving guidelines issued by the U.S. Environmental Protection Agency (EPA).

As an ENERGY STAR Partner LG Electronics USA, Inc. has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

P/NO : SAC31712401 (0805-REV03)
WARNING / CAUTION

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

WARNING / CAUTION

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 litera-
ture accompanying the appliance.

WARNING/CAUTION

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

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.

WARNING / CAUTION

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

FCC NOTICE

Class B digital device
This equipment has been tested and found to comply
with the limits for a Class B digital device, pursuant to
Part 15 of the FCC Rules. These limits are designed
to provide reasonable protection against harmful
interference in a residential installation. This equipment
generates, uses and can radiate radio frequency energy
and, if not installed and used in accordance with the
instructions, may cause harmful interference to radio
communications. However, there is no guarantee that
interference will not occur in a particular installation.
If this equipment does cause harmful interference to
radio or television reception, which can be determined
by turning the equipment off and on, the user is
couraged to try to correct the interference by one
or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and
receiver.
- Connect the equipment to an outlet on a circuit
different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV
technician for help.

Any changes or modifications not expressly approved
by the party responsible for compliance could void
the user’s authority to operate the equipment.

CAUTION

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.
SAFETY INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this apparatus near water.

2. Clean only with dry cloth.

3. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.

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

5. 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.

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

7. Only use attachments/accessories specified by the manufacturer.

8. Use only with the 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.

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

10. 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.
SAFETY INSTRUCTIONS

11 Never touch this apparatus or antenna during a thunder or lighting storm.

12 When mounting a TV on the wall, make sure not to install the TV by the hanging power and signal cables on the back of the TV.

13 Do not allow an impact shock or any objects to fall into the product, and do not drop onto the screen with something.

14 CAUTION concerning the Power Cord:
   It is recommend 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 servicer. 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 make 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.

15 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.

16 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).

17 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.

18 DISCONNECTING DEVICE FROM MAINS
   Mains plug is the disconnecting device. The plug must remain readily operable.

19 Keep the product away from direct sunlight.
**ANTENNAS**

**Outdoor antenna grounding**

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**

**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 against 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 (e.g.) plastic while plugged in. Do not install in excessively dusty places.

**Cleaning**

When cleaning, unplug the power cord and scrub 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 benzene.
SOUND & LANGUAGE CONTROL

Auto Volume Leveler (Auto Volume) ................................................................. 74
Clear Voice ........................................................................................................ 75
Preset Sound Setting (Sound Mode) ................................................................. 76
Sound Setting Adjustment - User Mode ............................................................ 77
Balance ............................................................................................................. 78
TV Speakers On/Off Setup .................................................................................. 79
Audio Reset ....................................................................................................... 80
Stereo/SAP Broadcasts Setup .......................................................................... 81
Audio Language ............................................................................................... 82
On-Screen Menus Language Selection ............................................................. 83
Caption Mode
  - Analog Broadcasting System Captions ....................................................... 84
  - Digital Broadcasting System Captions ....................................................... 85
  - Caption Option ......................................................................................... 86

TIME SETTING

Clock Setting
  - Auto Clock Setup ................................................................................... 87
  - Manual Clock Setup .................................................................................. 88
Auto On/Off Time Setting ............................................................................... 89
Sleep Timer Setting ......................................................................................... 90
Auto Shut-off Setting ...................................................................................... 91

PARENTAL CONTROL / RATINGS

Set Password & Lock System .......................................................................... 92
Channel Blocking ............................................................................................. 95
Movie & TV Rating ........................................................................................... 96
Downloadable Rating ...................................................................................... 101
External Input Blocking .................................................................................. 102
Key Lock .......................................................................................................... 103

APPENDIX

Troubleshooting ............................................................................................... 104
Maintenance ..................................................................................................... 106
Product Specifications ..................................................................................... 107
Programming the Remote Control ................................................................. 108
IR Code ............................................................................................................ 111
External Control Through RS-232C ............................................................... 113
Open Source License ....................................................................................... 120
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 monitor’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.

On Disposal
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.
ACCESSORIES

Ensure that the following accessories are included with your TV. If an accessory is missing, please contact the dealer where you purchased the TV.
The accessories included may differ from the images below.

Owner’s Manual
CD Manual
Remote Control, Batteries
Power Cord

Bolts for stand assembly
(Refer to P.10)
Screw for stand fixing
(Refer to P.12)
Protection Cover
Cable Management Clip

Polishing Cloth
(This feature is not available for all models.)

* Wipe spots on the exterior only with the polishing cloth.
* Do not wipe roughly when removing stains. Excessive pressure may cause scratches or discoloration.

Option Extras

When using the VGA (D-sub 15 pin cable) PC connection, the user must use shielded signal interface cables with ferrite cores to maintain standards compliance.

D-sub 15 pin Cable
NOTE: If your TV has a protection tape attached, remove the tape. And then wipe the TV with a cloth (If a polishing cloth is included with your TV, use it).

Image shown may differ from your TV.

Disc Slot:
Insert discs with the label facing towards the front of the TV. Press the disc partially into the slot and the loader will pull the disc from your hand. Do not force the disc into the slot.

Remote Control Sensor
Power/Standby Indicator
Illuminates red in standby mode.
Illuminates blue when the TV is switched on.
(Can be adjusted. Refer to Power Indicator in the OPTION menu. p.73)

POWER Button
EJECT Button
PLAY/PAUSE Button
STOP Button
SKIP Button
CHANNEL ( , ) Buttons
VOLUME (+, -) Buttons
ENTER Button
MENU Button
INPUT Button

Buttons
Buttons

Insert discs with the label facing towards the front of the TV. Press the disc partially into the slot and the loader will pull the disc from your hand. Do not force the disc into the slot.
BACK PANEL INFORMATION

- Image shown may differ from your TV.

1. **HDMI/DVI IN, HDMI IN**
   - Digital Connection. Supports HD video and Digital audio. Doesn’t support 480i.
   - Accepts DVI video using an adapter or HDMI to DVI cable (not included).

2. **COMPONENT IN**
   - Analog Connection. Supports HD.
   - Uses a red, green, and blue cable for video & red and white for audio.

3. **RGB (PC)**
   - Analog PC Connection. Uses a D-sub 15 pin cable (VGA cable).
   - AUDIO (RGB/DVI)
   - 1/8” headphone jack for analog PC audio input.

4. **REMOTE CONTROL IN PORT**
   - For a wired remote control.

5. **RS-232C IN (CONTROL & SERVICE)**
   - Used by third party devices.

6. **ANTENNA/CABLE IN**
   - Connect over-the-air signals to this jack.
   - Connect cable signals to this jack.

7. **DIGITAL AUDIO OUT OPTICAL**
   - Digital audio output for use with amps and home theater systems.
   - Includes an optical connection.
   - Note: In standby mode, these ports do not work.

8. **AUDIO OUT**
   - Analog audio output for use with amps and home theater systems.

9. **AV (Audio/Video) IN**
   - Analog composite connection. Supports standard definition video only (480i).
   - S-VIDEO
   - Better quality than standard composition.
   - Supports standard definition video only (480i).

10. **USB SERVICE ONLY**
    - Used for software updates.

11. **Power Cord Socket**
    - For operation with AC power.
    - Caution: Never attempt to operate the TV on DC power.
STAND INSTRUCTION

- Image shown may differ from your TV.

INSTALLATION

1. Carefully place the TV screen side down on a cushioned surface to protect the screen from damage.

2. Assemble the parts of the STAND BODY with COVER BASE of the TV.

3. Assemble the TV as shown.

4. Fix the 4 bolts securely using the holes in the back of the TV.

DETACHMENT

1. Carefully place the TV screen side down on a cushioned surface to protect the screen from damage.

2. Loose the bolts from TV.

3. Detach the stand from TV.

PROTECTION COVER

After removing the stand, install the included protection cover over the hole for the stand. Press the PROTECTION COVER into the TV until you hear it click. And push the tab aside.

NOTE

- When assembling the desk type stand, make sure the bolt is fully tightened (If not tightened fully, the TV can tilt forward after the product installation). Do not over tighten.
CABLE MANAGEMENT

- Image shown may differ from your TV.

1. Align the hole with the tab on the CABLE MANAGEMENT CLIP.
   Turn the CABLE MANAGEMENT CLIP as shown.
   Note: This cable management clip can be broken by excessive pressure.

2. Connect the cables as necessary.
   To connect additional equipment, see the EXTERNAL EQUIPMENT SETUP section.
DESKTOP PEDESTAL INSTALLATION

- Image shown may differ from your TV.

For proper ventilation, allow a clearance of 4 inches on all four sides from the wall.

![Diagram showing proper ventilation clearance](image)

⚠️ CAUTION

- Ensure adequate ventilation by following the clearance recommendations.
- Do not mount near or above any type of heat source.

SWIVEL STAND

After installing the TV, you can adjust the TV set manually to the left or right direction by 20 degrees to suit your viewing position.

![Diagram showing swivel stand](image)

ATTACHING THE TV TO A DESK

The TV should be attached to a desk so it cannot be pulled in a forward/backward direction, potentially causing injury or damaging the TV.

![Diagram showing attachment to desk](image)

⚠️ 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 machine may cause injury.
**VESPA WALL MOUNTING**

Install your wall mount on a solid wall perpendicular to the floor. When attaching to other building materials, please contact your nearest dealer.

If installed on a ceiling or slanted wall, it may fall and result in severe personal injury. We recommend that you use an LG brand wall mount when mounting the TV to a wall. LG recommends that wall mounting be performed by a qualified professional installer.

---

![Wall Mount Diagram]

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>VESA (A • B)</th>
<th>Standard Screw</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD TV</td>
<td>26LG40, 32LG40</td>
<td>200 • 100</td>
<td>M4</td>
<td>4</td>
</tr>
</tbody>
</table>

---

**NOTE**

- Screw length needed depends on the wall mount used. For further information, refer to the instructions included with the mount.
- Standard dimensions for wall mount kits are shown in the table.
- When purchasing our wall mount kit, a detailed installation manual and all parts necessary for assembly are provided.
- Do not use screws longer than the standard dimensions, as they may cause damage to the inside of the TV.
- For wall mounts that do not comply with the VESA standard screw specifications, the length of the screws may differ depending on their specifications.
- Do not use screws that do not comply with the VESA standard screw specifications.
- Do not use fasten the screws too strongly, this may damage the TV or cause the TV to a fall, leading to personal injury. LG is not liable for these kinds of accidents.
- LG is not liable for TV damage or personal injury when a non-VESA or non specified wall mount is used or the consumer fails to follow the TV installation instructions.

---

**CAUTION**

- Do not install your wall mount kit while your TV is turned on. It may result in personal injury due to electric shock.
SECURING THE TV TO THE WALL TO PREVENT FALLING WHEN THE TV IS USED ON A STAND

- You should purchase necessary components to prevent TV from falling off of the stand.
- Image shown may differ from your TV.

We recommend that you set up the TV close to a wall so it cannot fall over if pushed backwards. Additionally, we recommend that the TV be attached to a wall so it cannot be pulled in a forward direction, potentially causing injury or damaging the product.
Caution: Please make sure that children don’t climb on or hang from the TV.

*Insert the eye-bolts (or TV brackets and bolts) to tighten the product to the wall as shown in the picture.
*If your product has the bolts in the eye-bolts position before inserting the eye-bolts, loosen the bolts.
* Insert the eye-bolts or TV brackets/bolts and tighten them securely in the upper holes.
Secure the wall brackets with the bolts (sold separately) to the wall. Match the height of the bracket that is mounted on the wall to the holes in the product.
Ensure the eye-bolts or brackets are tightened securely.

* Use a sturdy rope (sold separately) to tie the product. It is safer to tie the rope so it becomes horizontal between the wall and the product.

**NOTE**
- Use a platform or cabinet strong enough and large enough to support the size and weight of the TV.
- To use the TV safely make sure that the height of the bracket on the wall and the one on the TV are the same.
To prevent damage do not connect to the power outlet until all connections are made between the devices.

ANTENNA OR CABLE CONNECTION

1. Antenna (Analog or Digital)

Wall Antenna Socket or Outdoor Antenna without a Cable Box Connections.
For optimum picture quality, adjust the antenna direction if needed.

- Wall Antenna Socket
- Multi-family Dwellings/Apartments (Connect to wall antenna socket)
- Outdoor Antenna (VHF, UHF)
- Single-family Dwellings/Houses (Connect to wall jack for outdoor antenna)
- RF Coaxial Wire (75 ohm)
- Copper Wire

Be careful not to bend the copper wire when connecting the antenna.

2. Cable

- Cable TV Wall Jack
- RF Coaxial Wire (75 ohm)
- Copper Wire

To improve the picture quality in a poor signal area, please purchase a signal amplifier and install properly.
- If the antenna needs to be split for two TV's, install a 2-Way Signal Splitter.
- If the antenna is not installed properly, contact your dealer for assistance.
EXTERNAL EQUIPMENT SETUP

To prevent the equipment damage, never plug in any power cords until you have finished connecting all equipment.

HD RECEIVER SETUP

This TV can receive digital over-the-air or digital cable signals without an external digital set-top box. However, if you do receive digital signals from a digital set-top box or other digital external device, refer to the figure as shown below.

Component Connection

1. How to connect

1. Connect the video outputs (Y, Pb, Pr) of the digital set-top box to the **COMPONENT IN VIDEO** jacks on the TV. Match the jack colors (Y = green, Pb = blue, and Pr = red).

2. Connect the audio output of the digital set-top box to the **COMPONENT IN AUDIO** jacks on the TV.

2. How to use

- Turn on the digital set-top box.
  (Refer to the owner’s manual for the digital set-top box operation)
- Select the Component input source on the TV using the INPUT button on the remote control.

Supported Resolutions

<table>
<thead>
<tr>
<th>Signal</th>
<th>Component</th>
<th>HDMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>480i</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>480p</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>720p</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>1080i</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>1080p</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Horizontal Frequency (KHz)</th>
<th>Vertical Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>720x480i</td>
<td>15.73</td>
<td>59.94</td>
</tr>
<tr>
<td>720x480p</td>
<td>31.47</td>
<td>59.94</td>
</tr>
<tr>
<td>1280x720p</td>
<td>44.96</td>
<td>59.94</td>
</tr>
<tr>
<td>1920x1080i</td>
<td>33.72</td>
<td>59.94</td>
</tr>
<tr>
<td>1920x1080p</td>
<td>26.97</td>
<td>23.94</td>
</tr>
<tr>
<td></td>
<td>27.00</td>
<td>24.00</td>
</tr>
<tr>
<td></td>
<td>33.71</td>
<td>29.97</td>
</tr>
<tr>
<td></td>
<td>33.75</td>
<td>30.00</td>
</tr>
<tr>
<td></td>
<td>67.43</td>
<td>59.94</td>
</tr>
<tr>
<td></td>
<td>67.50</td>
<td>60.00</td>
</tr>
</tbody>
</table>
HDMI Connection

1. How to connect

1. Connect the digital set-top box to HDMI/DVI IN1, 2, or 3 jack on the TV.

2. No separate audio connection is necessary. HDMI supports both audio and video.

2. How to use

- Turn on the digital set-top box.
  (Refer to the owner’s manual for the digital set-top box.)
- Select the HDMI1, HDMI2, or HDMI3 input source on the TV using the INPUT button on the remote control.

---

HDMI-DTV

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Horizontal Frequency(KHz)</th>
<th>Vertical Frequency(Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>720x480p</td>
<td>31.47</td>
<td>59.94</td>
</tr>
<tr>
<td></td>
<td>31.50</td>
<td>60.00</td>
</tr>
<tr>
<td>1280x720p</td>
<td>44.96</td>
<td>59.94</td>
</tr>
<tr>
<td></td>
<td>45.00</td>
<td>60.00</td>
</tr>
<tr>
<td>1920x1080i</td>
<td>33.72</td>
<td>59.94</td>
</tr>
<tr>
<td></td>
<td>33.75</td>
<td>60.00</td>
</tr>
<tr>
<td>1920x1080p</td>
<td>26.97</td>
<td>23.976</td>
</tr>
<tr>
<td></td>
<td>27.00</td>
<td>24.00</td>
</tr>
<tr>
<td></td>
<td>33.71</td>
<td>29.97</td>
</tr>
<tr>
<td></td>
<td>33.75</td>
<td>30.00</td>
</tr>
<tr>
<td></td>
<td>67.432</td>
<td>59.939</td>
</tr>
<tr>
<td></td>
<td>67.50</td>
<td>60.00</td>
</tr>
</tbody>
</table>
EXTERNAL EQUIPMENT SETUP

DVI to HDMI Connection

1. How to connect

1. Connect the DVI output of the digital set-top box to the HDMI/DVI IN1, 2, or 3 jack on the TV.

2. Connect the PC audio output to the AUDIO (RGB/DVI) jack on the TV.

2. How to use

- Turn on the digital set-top box.
  (Refer to the owner’s manual for the digital set-top box.)
- Select the HDMI 1, HDMI 2 or HDMI 3 input source on the TV using the INPUT button on the remote control.

NOTE

- A DVI to HDMI cable or adapter is required for this connection. DVI doesn’t support audio, so a separate audio connection is necessary.
DVD SETUP

Component Connection

1. How to connect

1. Connect the video outputs (Y, Pb, Pr) of the DVD to the COMPONENT IN VIDEO jacks on the TV. Match the jack colors (Y = green, Pb = blue, and Pr = red).

2. Connect the audio outputs of the DVD to the COMPONENT IN AUDIO jacks on the TV.

2. How to use

- Turn on the DVD player, insert a DVD.
- Select Component input source by using the INPUT button on the remote control.
- Refer to the DVD player’s manual for operating instructions.

Component Input ports
To get better picture quality, connect a DVD player to the component input ports as shown below.

<table>
<thead>
<tr>
<th>Component ports on the TV</th>
<th>Y</th>
<th>Pb</th>
<th>Pr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video output ports on DVD player</td>
<td>Y</td>
<td>Pb</td>
<td>Pr</td>
</tr>
<tr>
<td></td>
<td>Y</td>
<td>B-Y</td>
<td>R-Y</td>
</tr>
<tr>
<td></td>
<td>Y</td>
<td>Cb</td>
<td>Cr</td>
</tr>
<tr>
<td></td>
<td>Y</td>
<td>Pr</td>
<td></td>
</tr>
</tbody>
</table>
S-Video Connection

1. How to connect

1. Connect the S-VIDEO output of the DVD to the S-VIDEO input on the TV.

2. Connect the audio outputs of the DVD to the AUDIO input jacks on the TV.

2. How to use

- Turn on the DVD player, insert a DVD.
- Select the AV1 input source on the TV using the INPUT button on the remote control.
- Refer to the DVD player’s manual for operating instructions.

HDMI Connection

1. How to connect

1. Connect the HDMI output of the DVD to the HDMI/DVI IN 1, 2, or 3 jack on the TV.

2. No separated audio connection is necessary. HDMI supports both audio and video.

2. How to use

- Select the HDMI 1, 2, or 3 input source on the TV using the INPUT button on the remote control.
- Refer to the DVD player’s manual for operating instructions.
VCR SETUP

- To avoid picture noise (interference), leave an adequate distance between the VCR and TV.
- If the 4:3 picture format is used; the fixed images on the sides of the screen may remain visible on the screen. This phenomenon is common to all TVs and is not covered by warranty.

Antenna Connection

1. How to connect

1. Connect the RF antenna out socket of the VCR to the **ANTENNA/CABLE IN** socket on the TV.
2. Connect the antenna cable to the RF antenna in socket of the VCR.

2. How to use

- Set VCR output switch to 3 or 4 and then tune TV to the same channel number.
- Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner’s manual.)
Composite (RCA) Connection

1. How to connect

1. Connect the AUDIO/VIDEO jacks between TV and VCR. Match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red)

2. How to use

- Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner’s manual.)
- Select the AV1 input source on the TV using the INPUT button on the remote control.
- If connected to AV IN2, select AV2 input source on the TV.

**NOTE**

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

S-Video Connection

1. How to connect

1. Connect the S-VIDEO output of the VCR to the S-VIDEO input on the TV.

2. Connect the audio outputs of the VCR to the AUDIO input jacks on the TV.

2. How to use

- Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner’s manual.)
- Select the AV1 input source on the TV using the INPUT button on the remote control.

**CAUTION**

- Do not connect to both Video and S-Video at the same time. In the event that you connect both Video and the S-Video cables, only the S-Video will work.

**NOTE**

- The picture quality is improved: compared to normal composite (RCA cable) input.
OTHER A/V SOURCE SETUP

1. How to connect

1. Connect the AUDIO/VIDEO jacks between TV and external equipment. Match the jack colors. (Video = yellow, Audio Left = white, and Audio Right = red)

2. How to use

- Select the AV2 input source on the TV using the INPUT button on the remote control.
- If connected to AV IN1 input, select the AV1 input source on the TV.
- Operate the corresponding external equipment.
EXTERNAL EQUIPMENT SETUP

AUDIO OUT CONNECTION

Send the TV’s audio to external audio equipment via the Audio Output port.

Analog

1. How to connect

1. Connect audio outputs to the TV’s AUDIO OUT jacks.

2. Set the “TV Speaker option - Off” in the AUDIO menu. (p.79). See the external audio equipment instruction manual for operation.

Digital

1. How to connect

1. Connect one end of the optical cable to the TV’s OPTICAL port of DIGITAL AUDIO OUT.

2. Connect the other end of the optical cable to the digital audio input on the audio equipment.

3. Set the “TV Speaker option - Off” in the AUDIO menu. (p.79). See the external audio equipment instruction manual for operation.

NOTE

► When connecting with external audio equipments, such as amplifiers or speakers, you can turn the TV speakers off in the menu. (p.79)

CAUTION

► Do not look into the optical output port. Looking at the laser beam may damage your vision.
► Composite audio out (the red and white jacks) only works with composite inputs. Use optical audio output for any type of DTV signal.
PC SETUP

This TV provides Plug and Play capability, no display driver is needed.

VGA (D-Sub 15 pin) Connection

1. How to connect

1. Connect the VGA output of the PC to the RGB (PC) jack on the TV.

2. Connect the PC audio output to the AUDIO (RGB/DVI) jack on the TV.

2. How to use

- Turn on the PC and the TV.
- Select the RGB-PC input source on the TV using the INPUT button on the remote control.
DVI to HDMI Connection

1. How to connect

1. Connect the DVI output of the PC to the HDMI/DVI IN1, 2, or 3 jack on the TV.

2. Connect the PC audio output to the AUDIO (RGB/DVI) jack on the TV.

2. How to use

- Turn on the PC and the TV.
- Select the HDMI 1, HDMI 2 or HDMI 3 input source on the TV using the INPUT button on the remote control.
To get the best picture quality, adjust the PC graphics card to 1360x768.

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, run Auto Config. in the Screen (RGB-PC) menu. You may also try changing 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.

Avoid keeping a fixed image on the screen for a long period of time. The fixed image may become permanently imprinted on the screen.

The synchronization input form for Horizontal and Vertical frequencies is separate.

### Supported Display Specifications (RGB-PC, HDMI-PC)

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Horizontal Frequency(KHz)</th>
<th>Vertical Frequency(Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>640x350</td>
<td>31.469</td>
<td>70.08</td>
</tr>
<tr>
<td>720x400</td>
<td>31.469</td>
<td>70.08</td>
</tr>
<tr>
<td>640x480</td>
<td>31.469</td>
<td>59.94</td>
</tr>
<tr>
<td>800x600</td>
<td>37.879</td>
<td>60.31</td>
</tr>
<tr>
<td>1024x768</td>
<td>48.363</td>
<td>60.00</td>
</tr>
<tr>
<td>1280x768</td>
<td>47.776</td>
<td>59.87</td>
</tr>
<tr>
<td>1360x768</td>
<td>47.720</td>
<td>59.799</td>
</tr>
<tr>
<td>1366x768</td>
<td>47.130</td>
<td>59.65</td>
</tr>
</tbody>
</table>

* Only RGB-PC mode
EXTERNAL EQUIPMENT SETUP

Screen Setup for PC mode

Selecting Resolution

You can choose the resolution in RGB-PC mode. The **Position**, **Phase**, and **Size** can also be adjusted.

1. Select PICTURE.
2. Select Screen (RGB-PC).
3. Select Resolution.
4. Select the desired resolution.
5. **Enter**
Auto Configure

Automatically adjusts picture position and minimizes image instability. After adjustment, if the image is still not correct, try using the manual settings or a different resolution or refresh rate on the PC.

1. Select PICTURE.
2. Select Screen (RGB-PC).
3. Select Auto config..
4. Select Yes.
5. Start Auto Configuration.

- If the position of the image is still not correct, try Auto adjustment again.
- If picture needs to be adjusted again after Auto adjustment in RGB-PC, you can adjust the Position, Size or Phase.
### EXTERNAL EQUIPMENT SETUP

#### Adjustment for screen Position, Size, and Phase

If the picture is not clear after auto adjustment and especially if characters are still trembling, adjust the picture phase manually.

This feature operates only in RGB-PC mode.

1. **Select** PICTURE.
2. **Select** Screen (RGB-PC).
3. **Select** Position, Size, or Phase.
4. Make appropriate adjustments.

- **Position**: This function is to adjust picture to left/right and up/down as you prefer.
- **Size**: This function is to minimize any vertical bars or stripes visible on the screen background. And the horizontal screen size will also change.
- **Phase**: This function allows you to remove any horizontal noise and clear or sharpen the image of characters.
Screen Reset (Reset to original factory values)

Returns **Position**, **Size**, and **Phase** to the default factory settings.

This feature operates only in RGB-PC mode.

1. **Select PICTURE.**
2. **Select Screen (RGB-PC).**
3. **Select Reset.**
4. **Select Yes.**
5. **Enter**
REMOTE CONTROL FUNCTIONS

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

- **TV/STB/VCR /BUILT-IN DVD**: Select the remote operating mode: TV, STB, VCR, or BUILT-IN DVD.
- **POWER**: Turns your TV or any other programmed equipment on or off, depending on the mode.
- **Q.MENU**: Select the desired quick menu source. ➤ p.35
- **MENU**: Displays the main menu. Clear all on-screen displays and return to TV viewing from any menu.
- **INPUT**: External input modes rotate in regular sequence.
- **VOLUME UP /DOWN**: Increase/decrease the sound level.
- **FAV**: Scroll through the programmed Favorite channels. ➤ p.35
- **MUTE**: Switch the sound on or off. ➤ p.34
- **CHANNEL UP/DOWN**: Select available channels.
- **PAGE UP/DOWN**: Move from one full set of screen information to the next one.
- **NUMBER button**: Used to enter a program number for multiple program channels such as 2-1, 2-2, etc.
- **FLASHBK**: Tune to the last channel viewed.
- **VCR, SIMPLINK Control buttons**: Control video cassette recorders. Control the SIMPLINK compatible devices.
- **DVD Control buttons**: Controls the Built-In DVD Operation. For further details, see the ‘DVD Operation’ section. ➤ p.46-61
Installing Batteries

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

<table>
<thead>
<tr>
<th>THUMBSTICK (Up/Down/Left Right/ENTER)</th>
<th>Navigate the on-screen menus and adjust the system settings to your preference.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETURN</td>
<td>Allows the user to move return one step in an interactive application or other user interaction function. Also closes menus.</td>
</tr>
<tr>
<td>SIMPLINK</td>
<td>See a list of SIMPLINK compatible devices connected to the TV. When you press this button, the SIMPLINK menu appears at the screen. ➤ p.44-45</td>
</tr>
<tr>
<td>AV MODE</td>
<td>Toggles through preset picture and audio settings. ➤ p.43</td>
</tr>
<tr>
<td>Blue Color Button</td>
<td>The recommendations printed on the remote in blue are active when in Built-In DVD mode. For further details, see the ‘DVD Operation’ section. ➤ p.46-61</td>
</tr>
</tbody>
</table>
TURNING ON TV

1. First, connect power cord correctly. At this moment, the TV switches to standby mode.
   - In standby mode to turn TV on, press the (CH/INPUT) button on the TV or press the (POWER, INPUT, CH (▲ or ▼), Number (0~9)) button on the remote control.

2. Select the viewing source by using the INPUT button on the remote control.
   - This TV is programmed to remember which power state it was last set to, even if the power cord is out.

3. When finished using the TV, press the POWER button on the remote control. The TV reverts to standby mode.

**NOTE**
- If you intend to be away on vacation, disconnect the power plug from the wall power outlet.

CHANNEL SELECTION

1. Press the CH(▲ or ▼) or NUMBER buttons to select a channel number.

VOLUME ADJUSTMENT

Adjust the volume to suit your personal preference.

1. Press the VOL (+ or -) button to adjust the volume.

2. If you want to switch the sound off, press the MUTE button.

3. You can cancel the Mute function by pressing the MUTE or VOL (+ or -) button.
QUICK MENU

Your TV’s OSD (On Screen Display) may differ slightly from what is shown in this manual. Q.Menu (Quick Menu) is a menu of features which users might use frequently.

- **Aspect Ratio**: Selects your desired picture format.
- **Backlight**: Adjust the brightness of LCD panel to control the brightness of the screen.
- **Clear Voice**: By differentiating the human sound range from others, it helps make human voices sound better.
- **Picture Mode**: Selects the factory preset picture depend on the viewing environment.
- **Sound Mode**: Selects the factory preset sound for type of program.
- **Caption**: Select on or off.
- **Multi Audio**: Changes the audio language (Digital signal).
- **SAP**: Selects MTS sound (Analog signal).
- **Sleep Timer**: Select the amount of time before your TV turns off automatically.
- **Del/Add/Fav**: Select channel you want to add/delete or add the channel to the Favorite List.

![Q.Menu Menu](image)

1. **Display each menu.**
2. **Make appropriate adjustments.**
3. **Return to TV viewing.**
INITIAL SETTING

This Function guides the user to easily set the essential items for viewing the TV for the first time when purchasing the TV. It will be displayed on the screen when turning the TV on for the first time. It can also be activated from the user menus.

- Default selection is “Home”. We recommend setting the TV to “Home” mode for the best picture in your home environment.
- “In-store” Mode is only intended for use in retail environments. Customers can adjust the “Picture menu - Picture mode” manually while inspecting the TV, but the TV will automatically return to preset in-store mode after 5 minutes.

Step1. Mode Setting

1. Select **Home** Mode.

2. **ENTER**

Step2. Time Setting

1. Select **Auto** or **Manual**.

2. **ENTER**

3. Select desired time option.

Step3. Option Setting

1. Select **OSD Language Setting** or **Audio Language Setting**.

2. **ENTER**

3. **ENTER**

Step4. Auto Tuning

1. Start **Auto Tuning**.

! NOTE

- You can also adjust **Initial Setting** in the **OPTION** menu.
ON-SCREEN MENUS SELECTION

Your TV’s OSD (On Screen Display) may differ slightly from that shown in this manual.

1. Display each menu.
2. Select a menu item.
3. Enter to the pop up menu.
4. Return to TV viewing.
**CHANNEL SETUP**

**Auto Scan (Auto Tuning)**

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

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

1. Select **CHANNEL**.
2. Select **Auto Tuning**.
3. Select **Yes**.
4. Run **Auto tuning**.
5. Return to the previous menu.

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

---

**WATCHING TV / CHANNEL CONTROL**
Add/Delete Channel (Manual Tuning)

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

1. Select CHANNEL.
2. Select Manual Tuning.
3. Select DTV, TV, CADTV, or CATV.
4. Select channel you want to add or delete.
5. Select Add or Delete.
6. Return to the previous menu.

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

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

1. Select CHANNEL.
2. Select Channel Edit.
3. Select a channel.
4. Select channel you want to add or delete.
5. Return to the previous menu.

Return to TV viewing.
INPUT LIST

Only these input signals which are connected to a TV can be activated and selected.

- **Antenna**: Select it to watch over-the-air broadcasts.
- **Cable**: Select it to watch cable and digital cable.
- **AV**: Select them to watch a VCR or other external equipment.
- **Component**: Select them to watch DVD or a Digital set-top box.
- **Built-In DVD**: Select it to play DVD.
- **RGB-PC**: Select it to view PC input.
- **HDMI**: Select them to watch high definition devices.

Disconnected inputs are inactivated (grayed out).

Select a desired input source (except **Built-In DVD, Antenna or Cable**). Then, you can select your desired Input Label with using Q.MENU button. p.42
INPUT LABEL

You can set a label for each input source when it’s not in use.

With using OPTION menu

1. Select OPTION.
2. Select Input Label.
3. Select the source.
4. Select the label.
5. Return to the previous menu.

With using INPUT button

1. Select the source.
2. Select the label.
3. Return to the previous menu.

When new external device is connected, this popup menu is displayed automatically.

If selecting Yes, you can select input source that you want to appreciate.

But, when selecting “SIMPLINK - On”, popup menu for HDMI input will not be displayed.
AV MODE

You can select the optimal images and sounds.

1. Press the AV MODE button repeatedly to select the desired source.

2. If you select “Cinema” in AV mode, Cinema will be selected both for “PICTURE menu - Picture Mode” and “AUDIO menu - Sound Mode” respectively.

3. If you select “Off” in AV mode, the “Picture Mode” and “Sound Mode” return to previous selected value.
WATCHING TV / CHANNEL CONTROL

![SIMPLINK Logo]

This function operates only with devices with the SIMPLINK logo. The TV might not function properly when using it with other products with HDMI-CEC function. This allows you to control and play other AV devices connected with HDMI cable without additional cables and settings.

To start using SIMPLINK, turn it on in the user menus.

1. Select OPTION.
2. Select SIMPLINK.
3. Select On or Off.
4. Return to the previous menu.

Return to TV viewing.

**NOTE**

- Connect the HDMI/DVI IN or HDMI IN terminal of the TV to the rear terminal (HDMI terminal) of the SIMPLINK device with the HDMI cable.
- When you switch the Input source with the INPUT button on the remote control, the SIMPLINK device will stop.
- When you select a device with home theater functionality, the sound output automatically switches to the home theater speakers.
- If a connected SIMPLINK home theater system doesn’t play the audio from the TV, connect the DIGITAL AUDIO OUT terminal on the back of the TV to the DIGITAL AUDIO IN terminal on the back of the SIMPLINK device with an OPTICAL cable.
SIMPLINK Functions

- **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 TV.
- **Disc playback**: Control connected AV devices by pressing the \( \wedge \), \( \vee \), \(<\), \(>\), \(\text{ENTER}\), \(\text{■}\), \(\text{□}\), \(<\text{Fast Forward}\) and \(<\text{Fast Back}\) buttons.
- **Power off all devices**: When you power off the TV, all connected devices are turned off.
- **Switch audio-out**: Offers an easy way to switch audio-out.
- **Sync Power on**: When you play the connected AV device, TV will automatically turn on.

*(A device, which is connected to the TV through a HDMI cable but does not support SIMPLINK, does not provide this function)*

Note: To operate SIMPLINK, an HDMI cable over Version 1.2 with *CEC function support should be used. (*CEC: Consumer Electronics Control)*.

---

**SIMPLINK Menu**

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

- When no device is connected (displayed in gray)
- Selected Device
- When a device is connected (displayed in bright color)
NOTES ON DISCS

Symbol used in this manual

“◯” may appear on the TV screen during operation. A “◯” means that the operation is not permitted by the unit or is not available on the disc.

On handling discs
- Do not touch the playback side of the disc.
- Do not attach paper or tape to discs.

On cleaning discs
- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.
- Do not use any type of solvent such as thinner, benzine, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

On storing discs
- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

Structure of disc contents

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. Video CDs and Audio CDs are divided into tracks.

DVD video disc

Video CD/Audio CD

Each title, chapter or track is assigned a number, which is called “title number”, “chapter number” or “track number” respectively.

There may be discs that do not have these numbers.

Title: When two or more movies are recorded on a disc, the disc is divided into two or more parts. Each part is called a “TITLE”.

Chapter: The titles can be subdivided into many sections. Each section is called a “CHAPTER”.

Track: An audio CD can contain several items. These are assigned to the tracks.

Note
- If an MP3 or JPG file CD is created using an incorrect method, the player may not be able to recognize it. If this happens, try reburning another CD after setting up the disc writing parameters correctly on your PC.
Types of Playable Discs

- DVD (8 cm / 12 cm disc)
- Video CD (VCD) (8 cm / 12 cm disc)
- Audio CD (8 cm / 12 cm disc)

In addition, this unit plays DVD -R, DVD +R, DVD -RW, DVD +RW, Kodak Picture CDs, SVCD, and CD-R / CD-RW that contains audio titles, MP3, and/or JPG files.

Note: Depending on the conditions of the recording equipment or the CD-R/RW (or DVD -R, DVD +R, DVD -RW, DVD +RW) disc itself, some CD-R/RW (or DVD -R, DVD +R, DVD -RW, DVD +RW) discs cannot be played on the unit.

Regional code of the DVD player and DVDs

This DVD player is designed and manufactured for playback of region “1” encoded DVD software. The region code on the labels of some DVD discs indicates which type of player can play those discs. This unit can play only DVD discs labeled “1” or “ALL”. If you try to play any other discs, the message “Wrong Region” will appear on the TV screen. Some DVD discs may not have a region code label even though their playback is prohibited by area limits.

CAUTION:
This Digital Video Disc Player employs a Laser System. To ensure proper use of this product, please read this owner’s manual carefully and retain for future reference should the unit require maintenance, contact an authorized service location (see service procedure).

Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

To prevent direct exposure to laser beam, do not try to open the enclosure. Visible laser radiation when open. DO NOT STARE INTO BEAM.

CAUTION: The apparatus should not be exposed to water (dripping or splashing) and no objects filled with liquids, such as vases, should be placed on the apparatus.

Last Scene Memory

This player memorizes last scene from the last disc that is viewed. The last scene remains in memory even if you change the input source.

Note: This player does not memorize the scene of a disc if you remove the disc from the player or turn off the TV.
SELECTING LANGUAGE

Selecting Audio Language

Select your preferred audio language. If an audio language is selected, the selected audio language is played whenever you start a new disc playback. (The disc must contain the selected language)

You can also select another available audio language during playback with the AUDIO button on the remote control during playback.

1. Select Audio Language.
2. Select desired language.
3. Return to normal playback.

NOTE: Insert a DVD and press STOP button twice to access this DVD setup menu.
Selecting Subtitle Language

Select your preferred subtitle language. If a subtitle language is selected, the selected subtitle language is played whenever you start a new disc playback. (The disc must contain the selected language)

You can also select another available subtitle language with the SUBTITLE button on the remote control during playback.

1. Select **Subtitle Language**.
2. Select desired language.
3. Return to normal playback.
Selecting Disc OSD Language

The OSD (on screen display) can be shown on the screen in your specified language.

1. Select **MENU Language**.

2. Select desired language. The menus and on screen displays will appear in the selected language.

3. Return to normal playback.
PARENTAL CONTROL / RATINGS

Parental Control Setup

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

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

1. Select **Rating Level**.
2. Input the password.
3. Set the restriction level from 1 to 8. Viewing becomes more restricted as the number increases.
4. Return to normal playback.

- 1: Kids
- 2: G (General audience)
- 3: PG (Parental guidance suggested)
- 4: PG-13 (13 years and older)
- 5: PG-R
- 6: R (Restricted)
- 7: NC-17 (18 years and older)
- 8: Adult (Adults only)

Enter the password as requested.

The TV is set up with the initial password “0-0-0-0”.

If you ever forget your password, key in ‘7’, ‘7’, ‘7’, ‘7’ on the remote control.

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

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

1. Select New Password.
2. Input the password.
3. Enter it again when requested.
4. Return to normal playback.
PICTURE SIZE CONTROL

You can watch TV in various picture formats.

1. Select TV Screen.

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

3. Return to normal playback.

- Depending on the disc, the TV screen feature may not be available.
- 4:3 LB (Letter Box)
- 4:3 PS (Pan & Scan)
- 16:9
DIGITAL AUDIO OUTPUT

You can select the output for SPDIF (Sony/Philips Digital Interface).
Each DVD disc has a variety of audio output options.
Set the player's AUDIO options according to the type of audio system you use.

1. Select **Digital Output**.
2. Select **Off**, **Bitstream**, or **PCM**.
3. Return to normal playback.

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

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

1. Select DRC.

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

3. Return to normal playback.

With the DVD format, you can hear a program’s soundtrack in the most accurate and realistic presentation possible, thanks to digital audio technology. However, you may wish to compress the dynamic range of the audio output (the difference between the loudest sounds and the quietest ones).

This allows you to listen to a movie at a lower volume without losing clarity of sound. Set DRC to On for this effect.
PLAYING A DVD OR VIDEO CD

Basic Playback

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

Stop Playback/Ejection

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

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

Pause Playback (Still Mode)

1. Press this button during playback.
2. Use this button again to return to normal playback.

Fast Forward/Backward

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

Slow Motion

1. Press this button during playback. Select the required speed: II 1/2, II 1/4, II 1/8, II 1/16 (backward), or I ▶ 1/2, I ▶ 1/4, I ▶ 1/8, I ▶ 1/16 (forward).
2. Return to normal playback.

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

Skip a Chapter/Track

1. Press it briefly during playback to select the next chapter/track or to return to the beginning of the current chapter/track.
2. Press it twice briefly to step back to the previous chapter/track.
Still Picture and Frame-by-Frame Playback

1. Press this button during playback.

2. Press this button during playback. Press it repeatedly to advance the picture frame-by-frame.

3. Exit still motion mode.

Repeat Playback

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

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

Disc Menu (DVD only)

1. Press this button during playback.

2. Select the desired menu option.

3. Return to normal playback.

Title Menu (DVD only)

1. Press this button during playback.

2. Select the desired item.

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

OSD (On-Screen Display)

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

1. Press this button during playback. Title, Chapter information appears on screen.

2. Press it repeatedly to change OSD.

- DVD: Title Elapsed → Title Remain → Chapter Elapsed → Chapter Remain → Display off.
- Audio CD: Single Elapsed → Single Remain → Total Elapsed → Total Remain.

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

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

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

1. Select the start point during playback.
   "A" is displayed on TV screen and the starting point of your selected segment is set up.

2. Select the end point.
   "AB" is displayed on TV screen and the ending point is set up.
   Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.

3. Resume normal playback.

Subtitles

Press it during playback to see the different subtitle languages.

Zoom

When enlarging the picture, it may become distorted.

1. Press this button during playback.

2. Press it repeatedly to change the TV screen in the sequence: 2x, 3x, 4x.

3. Adjust the main picture position while in the enlarged picture mode.

Camera Angle (DVD only)

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

1. Press this button during playback.

2. Press it repeatedly to select the desired angle.

Zoom may not work on some DVDs.

PBC

Set Playback Control (PBC) to On or Off.

1. Select On or Off.
   - On: Video CDs with PBC are played according to the PBC.
   - Off: Video CDs with PBC are played the same way as Audio CDs.
MP3 OPERATION

MP3 Files Playback Options

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

2 Select desired folder.

3 Select desired file and play the MP3 file.

Stop Playback

1 Stop playback.

Pause Playback

1 Pause playback.

2 or Use this button again to return to normal playback.

Fast Forward/Backward

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

2 Return to normal playback.

Move to another Track

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

2 Press it twice briefly to go back to the previous track.

Repeat Playback

You can play a specific track repeatedly.

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

A-B Repeat Playback

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

1 Select the start point during playback. “A” is displayed on TV screen and the starting point of your selected segment is set up.

2 Select the end point. “AB” is displayed on TV screen and the ending point is set up. Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.

3 Resume normal playback.
**DVD OPERATION**

**AUDIO CD OPERATION**

**On-Screen Display**

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

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

**Stop Playback**

1. Stop playback. At this time the CD player stops playback temporarily and maintains the current playback position.

2. Press it repeatedly to stop playback fully. (At this time if you press the ▶ button, disc playback starts from the beginning.)

**Pause Playback (Still Mode)**

1. Pause playback.

2. or Return to normal playback.

**Fast Forward/Backward**

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

2. Return to normal playback.

**Repeat Playback**

You can play a specific track repeatedly.

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

**Move to another Track**

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

**A-B Repeat Playback**

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

1. Select the start point during playback. “A” is displayed on TV screen and the starting point of your selected segment is set up.

2. Select the end point. “AB” is displayed on TV screen and the ending point is set up. Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.

3. Resume normal playback.
JPG FILE VIEWING OPTIONS

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

Picture Selection

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

2. Start Slide show mode.

3. Return to play list.

Rotation

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

Repeat Playback

You can show JPG files repeatedly.

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

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

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

PICTURE SIZE (ASPECT RATIO) CONTROL

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

NOTE

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

1. Select PICTURE.
2. Select Aspect Ratio.
3. Select the desired picture format.
4. Return to the previous menu.
   You can also adjust Aspect Ratio in the Q-Menu.
5. Return to TV viewing.
Set by program
Selects the proper picture proportion to match the source’s image.

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

(4:3  4:3)

(16:9  16:9)

16:9
Adjust the picture horizontally, in a linear proportion to fill the entire screen.

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

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

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

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

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

Picture Mode - Preset

There are factory presets for picture settings available in the user menus. You can use a preset, change each setting manually, or adjust Picture Mode in the Q. Menu.

1. Select PICTURE.
2. Select Picture Mode.
3. Select Vivid, Standard, Cinema, Sport, or Game.
4. Return to the previous menu.

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

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

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

MANUAL PICTURE ADJUSTMENT

Picture Mode - User Mode

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

1. Select PICTURE.

2. Select Picture Mode.

3. Select Vivid, Standard, Cinema, Sport, or Game.

4. Select Backlight, Contrast, Brightness, Sharpness, Color, or Tint.

5. Make appropriate adjustments.

6. Return to the previous menu.

Return to TV viewing.
Picture Mode - Expert Control

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

---

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

PICTURE IMPROVEMENT TECHNOLOGY

Fresh Contrast: Optimizes the contrast automatically according to the brightness of the reflection.
Fresh Color: Adjusts the color of the reflection automatically to reproduce as close as possible natural colors.
Noise Reduction: Removes interference up to the point where it does not damage the original picture.
Gamma: High gamma values display whitish images and low gamma values display high contrast images.

Select PICTURE.
Select Advanced Control.
Select Fresh Contrast, Fresh Color, Noise Reduction, or Gamma.
Select your desired options.
Return to the previous menu.
Return to TV viewing.
ADVANCED CONTROL - BLACK (DARKNESS) LEVEL

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

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

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

ADVANCED CONTROL - EYE CARE

Dims extremely bright pictures.
This feature is disabled in “Picture Mode-Vivid, Cinema”.

1. Select PICTURE.
2. Select Advanced Control.
3. Select Eye Care.
4. Select On or Off.
5. Return to the previous menu.

Return to TV viewing.
ADVANCED CONTROL - REAL CINEMA

Set up the TV for the best picture appearance for viewing movies. When you operate Real Cinema (3:2 Pull-Down Mode or Cinema Correction Mode), the TV will adjust 24 fps video from movies to 30 fps video for display. This feature operates only in TV (Analog TV/CATV, Digital DTV/CADTV), AV1, AV2, Component 480i/1080i, and HDMI 1080i mode.

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

Return to TV viewing.
PICTURE CONTROL

PICTURE RESET

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

1. Select **PICTURE**.
2. Select **Reset**.
3. Initialize the adjusted value.
4. Return to TV viewing.
POWER INDICATOR

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

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

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

1. Select AUDIO.
2. Select Auto Volume.
3. Select On or Off.
4. Return to the previous menu.
5. Return to TV viewing.
CLEAR VOICE

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

1. Select AUDIO.
2. Select Clear Voice.
3. Select On or Off.
4. Return to the previous menu.
   - If you select “Clear Voice-On”, SRS TruSurround XT feature will not work.
   - You can also adjust Clear Voice in the Q-Menu.

   ![Audio Settings Menu]

   ![Audio Settings Menu]

   ![Audio Settings Menu]
PRESET SOUND SETTINGS (SOUND MODE)

Sound Mode lets you enjoy the best sound without any special adjustment as the TV sets the appropriate sound options based on the program content. **Standard, Music, Cinema, Sport, and Game** are preset for optimum sound quality at the factory and are not adjustable.

1. Select **AUDIO**.
2. Select **Sound Mode**.
3. Select **Standard, Music, Cinema, Sport, or Game**.
4. Return to the previous menu.
   - You can also adjust **Sound Mode** in the Q. Menu.

Return to TV viewing.
SOUND SETTING ADJUSTMENT - USER MODE

Adjust the sound to suit your taste and room situations.

SOUND SETTINGS ADJUSTMENT

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

SRS TRUSURROUND XT

1. Select AUDIO.
2. Select SRS TruSurround XT.
3. Select On or Off.
4. Return to the previous menu.
5. Make appropriate adjustments.
6. Return to the previous menu.
    Return to TV viewing.

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

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

1. Select AUDIO.
2. Select Balance.
3. Make appropriate adjustments.
4. Return to the previous menu.
5. Return to TV viewing.
**TV SPEAKERS ON/OFF SETUP**

Turn the TV speakers off if using external audio equipment.

1. Select **AUDIO**.
2. Select **TV Speaker**.
3. Select **On** or **Off**.
4. Return to the previous menu.
   
   Return to TV viewing.
**SOUND & LANGUAGE CONTROL**

**AUDIO RESET**

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

1. **Select AUDIO.**
2. **Select Reset.**
3. **Initialize the adjusted value.**
4. **Return to TV viewing.**
STEREO/SAP BROADCAST SETUP

For Analog only: This TV can receive MTS stereo programs and any SAP (Secondary Audio Program) that accompanies the stereo program if the station transmits an additional sound signal. Mono sound is automatically used if the broadcast is only in Mono.

Analog TV

1. Select SAP.
2. Select Mono, Stereo, or SAP.
3. Return to TV viewing.

Digital TV

1. Select Multi Audio.
2. Select other languages.
3. Return to TV viewing.
SOUND & LANGUAGE CONTROL

AUDIO LANGUAGE

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

1. Select OPTION.
2. Select Language.
3. Select Audio.
4. Select your desired language: English, Spanish, or French
5. Return to the previous menu.
6. Return to TV viewing.
ON-SCREEN MENUS LANGUAGE SELECTION

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

1. Select OPTION.
2. Select Language.
3. Select Menu.
4. Select your desired language. From this point on, the on-screen menus will be shown in the selected language.
5. Return to the previous menu.

Return to TV viewing.
**SOUND & LANGUAGE CONTROL**

**CAPTION MODE**

**Analog Broadcasting System Captions**

Caption must be provided to help people with hearing loss watch TV. Select a caption mode for displaying captioning information if provided on a program. Analog caption displays information at any position on the screen and is usually the program’s dialog. Caption/Text, if provided by the broadcaster, would be available for both digital and analog channels on the Antenna/Cable. This TV is programmed to memorize the caption/text mode which was last set when you turned the power off. This function is only available when Caption Mode is set On.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Move</th>
<th>Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language : English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Label : On</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIMPLINK : On</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key Lock : Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caption : Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Set ID : 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Setting : Home</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When selecting Off, Sub-menus for Analog, DTV, and Digital Option become disabled.

**CAPTION**

The term for the words that scroll across the bottom of the TV screen; usually the audio portion of the program provided for the hearing impaired.

**TEXT**

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

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

Return to TV viewing.
Digital Broadcasting System Captions

Choose the language you want the DTV/CADTV Captions to appear in. Other Languages can be chosen for digital sources only if they are included on the program. This function is only available when Caption Mode is set On.

Choose:

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

Customize the DTV/CADTV captions that appear on your screen.
This function in only available when Caption Mode is set On.

1. Select OPTION.
2. Select Caption
4. Select Digital Option.
5. Select Custom.
6. Customize the Style, Font, etc., to your preference. A preview icon is provided at the bottom of the screen, use it to see the caption language.
7. Return to the previous menu.

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

CLOCK SETTING

Auto Clock Setup

The time is set automatically from a digital channel signal. The digital channel signal includes information for the current time provided by the broadcasting station. Set the clock manually if the current time is set incorrectly by the auto clock function.

1. Select TIME.
2. Select Clock.
3. Select Auto.
4. Select your viewing area time zone.
   - U.S.A: Eastern, Central, Mountain, Pacific, Alaska, or Hawaii.
   - Canada: Eastern, Central, Mountain, Pacific, New F.land, or Atlantic.
5. Select Auto, On, or Off (depending on whether or not your viewing area observes Daylight Saving time).
6. Return to the previous menu.
7. Return to TV viewing.
Manual Clock Setup

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

1. Select TIME.
2. Select Clock.
4. Select the Year, Month, Date, Hour, or Minutes option.
5. Set the Year, Month, Date, Hour, or Minutes option.
6. Return to the previous menu.
7. Return to TV viewing.
AUTO ON/OFF TIME SETTING

This function operates only if the current time has been set. The Off Time function overrides the On Time function if they are both set to the same time. The TV must be in standby mode for the On Time to work.

If you do not press any button within 2 hours after the TV turns on with the On Time function, the TV will automatically revert to standby mode.

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

To cancel On/Off Time function, select Off.
Only for On Time function

1. Select Input.
2. Select TV, AV1, AV2, Component, Built-In DVD, RGB-PC, HDMI1, HDMI2, or HDMI3.
3. When Selecting TV: set the channel at turn-on.
4. Adjust to sound level at turn-on.
SLEEP TIMER SETTING

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

1. Select TIME.
2. Select Sleep Timer.
3. Select Off, 10, 20, 30, 60, 90, 120, 180, or 240 minutes.
4. Return to the previous menu.

You can also adjust Sleep Timer in the Q.Menu.
AUTO SHUT-OFF SETTING

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

1. Select TIME.

2. Select Auto Sleep.

3. Select On or Off.

4. Return to the previous menu.

Return to TV viewing.
PARENTAL CONTROL / RATINGS

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

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

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

Ratings for Television programs including made-for-TV movies:
- TV-G (General audience)
- TV-PG (Parental guidance suggested)
- TV-14 (Parents strongly cautioned)
- TV-MA (Mature audience only)
- TV-Y (All children)
- TV-Y7 (Children 7 years older)

SET PASSWORD & LOCK SYSTEM

Setting up Your Password
Set up blocking schemes to block specific channels, ratings, and external viewing sources.
A password is required to gain access to this menu.

For USA

1. Select LOCK.
2. Input the password.

For Canada

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

Enter Password
Lock System

Enables or disables the blocking scheme you set up previously.

1. Select LOCK.
2. Input the password.
3. Select Lock System.
4. Select On or Off.
5. Return to the previous menu.

When you select On, the Lock System is enable.
Set Password

Change the password by inputting a new password twice.

1. Select LOCK.

2. Input the password.

3. Select Set password.

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

5. Return to the previous menu.

   Return to TV viewing.
CHANNEL BLOCKING

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

1. Select LOCK.

2. Input the password.

3. Select Block Channel.

4. Select a channel to block or unblock it.

5. Block or unblock a channel.

6. Return to the previous menu.

Return to TV viewing.
MOVIE & TV RATING

Movie Rating (MPAA) - Only for USA

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

1. Select LOCK.
2. Input the password.
3. Select Movie Rating.
4. Select G, PG, PG-13, R, NC-17 or X.
5. Return to the previous menu.

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

If you set PG-13: G and PG movies will be available, PG-13, R, NC-17 and X will be blocked.
TV Rating Children - Only for USA

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

1. Select LOCK.
2. Input the password.
4. Select Age or Fantasy Violence.
5. Select block options.
6. Return to the previous menu.

- Age (applies to TV-Y, TV-Y7)
- Fantasy Violence (applies to TV-Y7)
PARENTAL CONTROL / RATINGS

TV Rating General - *Only for USA*

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

1. Select LOCK.
2. Input the password.
4. Select Age, Dialogue, Language, Sex or Violence.
5. Select block options.
6. Return to the previous menu.

- Age (applies to TV-G, TV-PG, TV-14, TV-MA).
- Dialogue-sexual dialogue (applies to TV-PG, TV-14).
- Language-adult language (applies to TV-PG, TV-14, TV-MA).
- Sex-sexual situations (applies to TV-PG, TV-14, TV-MA).
- Violence (applies to TV-PG, TV-14, TV-MA).
TV Rating English - Only for CANADA

Selecting canadian english language rating system.

1. Select LOCK.
2. Input the password.
4. Select E, C, C8+, G, PG, 14+, 18+, or Blocking Off.
5. Return to the previous menu.

Enter Move LOCK

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

Selecting canadian french language rating system.

1. Select **LOCK**.

2. Input the password.

3. Select **TV Rating-French**.


5. Return to the previous menu.

- **E** (Exempt)
- **G** (General)
- **8ans+** (General-Not convenient for little children)
- **13ans+** (Not convenient for children of 13 years and younger)
- **16ans+** (Not convenient for children of 16 years and younger)
- **18ans+** (This program is only for adults)
- **Blocking off** (Permits all programs)

Return to TV viewing.
DOWNLOADABLE RATING

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

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

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

Enables you to block an input.

1. Select LOCK.
2. Input the password.
3. Select Input Block.
4. Select input source.
5. Select On or Off.
6. Return to the previous menu.
7. Return to TV viewing.
KEY LOCK

The TV can be set up so that it can only be used with the remote control. This feature can be used to prevent unauthorized viewing by locking out the front panel controls. This TV is programmed to remember which option it was last set to even if you turn the TV off.

1. Select OPTION.
2. Select Key Lock.
3. Select On or Off.
4. Return to the previous menu.

- In Key Lock ‘On’, if the TV is turned off, press the \( \text{I} / \text{O}, \text{INPUT}, \text{CH} \uparrow \downarrow \) button on the TV or \( \text{POWER}, \text{INPUT}, \text{CH} \uparrow \downarrow \) or NUMBER buttons on the remote control.
- With the Key Lock On, the display ‘\( \text{Key Lock} \)’ appears on the screen if any button on the front panel is pressed while viewing the TV.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Move</th>
<th>Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>: English</td>
<td></td>
</tr>
<tr>
<td>Input Label</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIMPLINK</td>
<td>: On</td>
<td></td>
</tr>
<tr>
<td>Key Lock</td>
<td>: Off</td>
<td></td>
</tr>
<tr>
<td>Caption</td>
<td>: Off</td>
<td></td>
</tr>
<tr>
<td>Set ID</td>
<td>: 1</td>
<td></td>
</tr>
<tr>
<td>Power Indicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Setting</td>
<td>: Home</td>
<td></td>
</tr>
</tbody>
</table>
## TROUBLESHOOTING

### The operation does not work normally.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
</table>
| The remote control doesn’t work                                      | - Check to see if there is any object between the product and the remote control causing obstruction. Ensure you are pointing the remote control directly at the TV.  
- Ensure that the batteries are installed with correct polarity (+ to +, - to -).  
- Ensure that the correct remote operating mode is set: TV, VCR etc.  
- Install new batteries.                                             |
| Power is suddenly turned off                                         | - Is the sleep timer set?  
- Check the power control settings. Power interrupted.                        |

### The video function does not work.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
</table>
| No picture & No sound                                                | - Check whether the product is turned on.  
- Try another channel. The problem may be with the broadcast.  
- Is the power cord inserted into wall power outlet?  
- Check your antenna direction and/or location.  
- Test the wall power outlet, plug another product’s power cord into the outlet where the product’s power cord was plugged in. |
| Picture appears slowly after switching on                            | - This is normal, the image is muted during the product startup process. Please contact your service center, if the picture has not appeared after a few minutes. |
| No or poor color or poor picture                                     | - Adjust Color in menu option.  
- Try unplugging any others electronics that are near by to see if interference is causing the problem.  
- Try another channel. The problem may be with the broadcast.  
- Are the video cables installed properly?  
- Activate any function to restore the brightness of the picture.    |
| Horizontal/vertical bars or picture shaking                          | - Check for local interference such as an electrical appliance or power tool.                  |
| Poor reception on some channels                                      | - Station or cable product experiencing problems, tune to another station.  
- Station signal is weak, reorient antenna.  
- Check for sources of possible interference.                        |
| Lines or streaks in pictures                                         | - Check antenna (Change the direction of the antenna).                                        |
| No picture when connecting HDMI                                      | - Check HDMI cable over version 1.3.  
If the HDMI cables don’t support HDMI version 1.3, it can cause flickers or no screen display. In this case use the latest cables that support HDMI version 1.3. |
### The audio function does not work.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solutions</th>
</tr>
</thead>
</table>
| Picture OK but No sound | - Press the VOL or VOLUME button.  
- Sound muted? Press MUTE button.  
- Try another channel. The problem may be with the broadcast.  
- Are the audio cables installed properly? |
| No output from one of the speakers | - Adjust Balance in menu option. |
| Unusual sound from inside the product | - A change in ambient humidity or temperature may result in an unusual noise when the product is turned on or off and does not indicate a fault with the product. |
| No sound when connecting HDMI or USB | - Check HDMI cable over version 1.3.  
- Check USB cable over version 2.0. |

*This feature is not available for all models.*

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

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solutions</th>
</tr>
</thead>
</table>
| The signal is out of range | - Adjust resolution, horizontal frequency, or vertical frequency.  
- Check the input source. |
| Vertical bar or stripe on background & Horizontal Noise & Incorrect position | - Run the Auto configure or adjust clock, phase, or H/V position. (Option) |
| Screen color is unstable or single color | - Check the signal cable.  
- Update video card drivers. |
MAINTENANCE

Early malfunctions can be prevented. Careful and regular cleaning can extend the amount of time you enjoy your new TV.
Caution: Be sure to turn the power off and unplug the power cord before you begin any cleaning.

Cleaning the Screen

1. Here’s a great way to keep the dust off your screen for a while. Wet a soft cloth in a mixture of lukewarm water and a little fabric softener or dish washing detergent. Wring the cloth until it’s almost dry, and then use it to wipe the screen.

2. Make sure the excess water is off the screen, and then let it air-dry before you turn on your TV.

Cleaning the Cabinet

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

Extended Absence

⚠️ CAUTION

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

<table>
<thead>
<tr>
<th>MODELS</th>
<th>26LG40 (26LG40-UA)</th>
<th>32LG40 (32LG40-UA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(26LG40-UG)</td>
<td>(32LG40-UG)</td>
</tr>
<tr>
<td><strong>Dimensions</strong>&lt;br&gt;(Width x Height x Depth)</td>
<td>With stand</td>
<td>26.2 x 20.6 x 10.5 inches&lt;br&gt;666.8 x 524.5 x 267.0 mm</td>
</tr>
<tr>
<td></td>
<td>Without stand</td>
<td>26.2 x 18.0 x 4.0 inches&lt;br&gt;666.8 x 457.8 x 103.0 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>With stand</td>
<td>24.4 pounds / 11.1 kg&lt;br&gt;21.1 pounds / 9.6 kg</td>
</tr>
<tr>
<td></td>
<td>Without stand</td>
<td></td>
</tr>
<tr>
<td><strong>Power requirement</strong></td>
<td>AC100-240V ~ 50/60Hz</td>
<td>NTSC-M, ATSC, 64 &amp; 256 QAM</td>
</tr>
<tr>
<td><strong>Television System</strong></td>
<td>NTSC-M, ATSC, 64 &amp; 256 QAM</td>
<td>NTSC-M, ATSC, 64 &amp; 256 QAM</td>
</tr>
<tr>
<td><strong>Program Coverage</strong></td>
<td>VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135</td>
<td>VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135</td>
</tr>
<tr>
<td><strong>External Antenna Impedance</strong></td>
<td>75 ohm</td>
<td>75 ohm</td>
</tr>
<tr>
<td><strong>Built-In DVD Video Format</strong></td>
<td>480i</td>
<td>480i</td>
</tr>
<tr>
<td><strong>Environment condition</strong></td>
<td>Operating Temperature</td>
<td>32 ~ 104°F (0 ~ 40°C)</td>
</tr>
<tr>
<td></td>
<td>Operating Humidity</td>
<td>Less than 80%</td>
</tr>
<tr>
<td></td>
<td>Storage Temperature</td>
<td>-4 ~ 140°F (-20 ~ 60°C)</td>
</tr>
<tr>
<td></td>
<td>Storage Humidity</td>
<td>Less than 85%</td>
</tr>
</tbody>
</table>

- The specifications shown above may be changed without prior notice for quality improvement.
PROGRAMMING THE REMOTE CONTROL

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

Programming a code into a remote mode

1. Testing your remote control.
   To find out whether your remote control can operate other components without programming, turn on a component such as a STB and press the corresponding mode button (such as a STB) on the remote control, while pointing at the component. Test the POWER and CH ∧ ∨ buttons to see if the component responds correctly. If the component does not operate correctly, the remote control requires programming to operate the device.

2. Turn on the component to be programmed, then press the corresponding mode button (such as STB) on the remote control. The remote control button of the desired device is illuminated.

3. Press the MENU and MUTE buttons simultaneously, and the remote control is ready to be programmed with the code.

4. Enter a code number using the number buttons on the remote control. Programming code numbers for the corresponding component can be found on the following pages. If the code is correct, the device will turn off.

5. Press the MENU button to store the code.

6. Test the remote control functions to see if the component responds correctly. If not, repeat from step 2.
## Remote Control Code

### VCR

<table>
<thead>
<tr>
<th>Brand</th>
<th>Codes</th>
<th>Brand</th>
<th>Codes</th>
<th>Brand</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIWA</td>
<td>034</td>
<td>MAGNAVOX</td>
<td>031</td>
<td>SAMSUNG</td>
<td>032</td>
</tr>
<tr>
<td></td>
<td>016</td>
<td>033 046 124</td>
<td>033</td>
<td>034 041</td>
<td>041</td>
</tr>
<tr>
<td></td>
<td>125</td>
<td>146</td>
<td>067</td>
<td>068</td>
<td>102</td>
</tr>
<tr>
<td>AMPRO</td>
<td>072</td>
<td>MARANTZ</td>
<td>012</td>
<td>031 033 067</td>
<td>104</td>
</tr>
<tr>
<td>ANAM</td>
<td>031</td>
<td>033 103</td>
<td>069</td>
<td>113 115 120 122</td>
<td>112</td>
</tr>
<tr>
<td>AUDIO DYNAMICS</td>
<td>012</td>
<td>MARTA</td>
<td>101</td>
<td>125 146</td>
<td>125</td>
</tr>
<tr>
<td>BORKSONIC</td>
<td>035</td>
<td>037 129</td>
<td>107</td>
<td>109 112 129</td>
<td>134</td>
</tr>
<tr>
<td>CANON</td>
<td>028</td>
<td>MEMOREX</td>
<td>003</td>
<td>010 014 031</td>
<td>131</td>
</tr>
<tr>
<td>CAPEHART</td>
<td>108</td>
<td>033</td>
<td>033</td>
<td>034 053 072</td>
<td>131</td>
</tr>
<tr>
<td>CRAIG</td>
<td>003</td>
<td>040 135</td>
<td>033</td>
<td>034 046 059</td>
<td>131</td>
</tr>
<tr>
<td>CURTIS MATHES</td>
<td>031</td>
<td>033 041</td>
<td>049</td>
<td>051 059 061</td>
<td>131</td>
</tr>
<tr>
<td>DAEWOO</td>
<td>005</td>
<td>007 010 064</td>
<td>151</td>
<td>101</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>065</td>
<td>108 110 111</td>
<td>045</td>
<td>046 059</td>
<td>131</td>
</tr>
<tr>
<td>DAYTRON</td>
<td>108</td>
<td>012</td>
<td>013</td>
<td>020</td>
<td>131</td>
</tr>
<tr>
<td>DBX</td>
<td>012</td>
<td>MTC</td>
<td>042</td>
<td>034 040</td>
<td>131</td>
</tr>
<tr>
<td>DYNATECH</td>
<td>034</td>
<td>053</td>
<td>101</td>
<td>031 042 073 081</td>
<td>131</td>
</tr>
<tr>
<td>ELECTROHOME</td>
<td>059</td>
<td>NEC</td>
<td>048</td>
<td>033 034 043</td>
<td>131</td>
</tr>
<tr>
<td>EMERSON</td>
<td>006</td>
<td>017 025 027</td>
<td>043</td>
<td>054</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>029</td>
<td>031 034 035</td>
<td>066</td>
<td>070 074 083</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>036</td>
<td>037 046 101</td>
<td>133</td>
<td>140 145</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>129</td>
<td>131 138 153</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FISHER</td>
<td>003</td>
<td>008 009 010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FUNAI</td>
<td>034</td>
<td>034</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GE</td>
<td>031</td>
<td>033 063 072</td>
<td>013</td>
<td>020 031 033</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>107</td>
<td>109 144 147</td>
<td>063</td>
<td>014</td>
<td>131</td>
</tr>
<tr>
<td>GO VIDEO</td>
<td>132</td>
<td>136</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HARMAN KARDON</td>
<td>012</td>
<td>045</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HITACHI</td>
<td>004</td>
<td>018 026 034</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>043</td>
<td>063 137 150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSTANTREPLAY</td>
<td>031</td>
<td>033</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCL</td>
<td>031</td>
<td>033</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JCPENNY</td>
<td>012</td>
<td>013 015 033</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>040</td>
<td>066 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JENSEN</td>
<td>043</td>
<td>034 039 043</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JVC</td>
<td>012</td>
<td>031 033 043</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>048</td>
<td>050 055 060</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>130</td>
<td>150 152</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KENWOOD</td>
<td>014</td>
<td>034 039 043</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>047</td>
<td>048</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LG (GOLDSTAR)</td>
<td>001</td>
<td>012 013 020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LLOYD</td>
<td>034</td>
<td>009 013 014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LXI</td>
<td>003</td>
<td>034 101 106</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAGIN</td>
<td>040</td>
<td>009 013 014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand</td>
<td>Codes</td>
<td>Brand</td>
<td>Codes</td>
<td>Brand</td>
<td>Codes</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------</td>
<td>---------------------</td>
<td>-------</td>
<td>------------------</td>
<td>-------</td>
</tr>
<tr>
<td>ALPHASTAR DSR</td>
<td>123</td>
<td>HOUSTON TRACKER</td>
<td>033</td>
<td>PROSAT</td>
<td>072</td>
</tr>
<tr>
<td>AMPILICA</td>
<td>050</td>
<td></td>
<td>037</td>
<td></td>
<td>057</td>
</tr>
<tr>
<td>BIRDVIEW</td>
<td>051</td>
<td>HUGHES</td>
<td>068</td>
<td>RCA</td>
<td>066</td>
</tr>
<tr>
<td>CHANNEL MASTER</td>
<td>013</td>
<td>JANIEL</td>
<td>060</td>
<td>REALISTIC</td>
<td>074</td>
</tr>
<tr>
<td></td>
<td>036</td>
<td>JERROLD</td>
<td>061</td>
<td>SAMSUNG</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>055</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHAPARRAL</td>
<td>008</td>
<td>KATHREIN</td>
<td>108</td>
<td>SATELLITE SERVICE</td>
<td>028</td>
</tr>
<tr>
<td></td>
<td>009</td>
<td></td>
<td></td>
<td></td>
<td>035</td>
</tr>
<tr>
<td></td>
<td>012</td>
<td></td>
<td></td>
<td></td>
<td>047</td>
</tr>
<tr>
<td></td>
<td>077</td>
<td></td>
<td></td>
<td></td>
<td>057</td>
</tr>
<tr>
<td>CITOH</td>
<td>054</td>
<td>LEGEND</td>
<td>057</td>
<td>SCIENTIFIC ATLANTA</td>
<td>032</td>
</tr>
<tr>
<td>CURTIS MATHEW DRAKE</td>
<td>050</td>
<td>LG</td>
<td>001</td>
<td>SONY</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>145</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>005</td>
<td>LUTRON</td>
<td>132</td>
<td>STARCAST</td>
<td>041</td>
</tr>
<tr>
<td></td>
<td>006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>007</td>
<td>LUXOR</td>
<td>062</td>
<td>SUPER GUIDE</td>
<td>020</td>
</tr>
<tr>
<td></td>
<td>010</td>
<td>MACOM</td>
<td>063</td>
<td></td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>141</td>
<td></td>
<td>064</td>
<td></td>
<td>125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DX ANTENNA</td>
<td>024</td>
<td>MEMOREX</td>
<td>057</td>
<td>TOSHIBA</td>
<td>002</td>
</tr>
<tr>
<td></td>
<td>046</td>
<td>NEXTWAVE</td>
<td>028</td>
<td></td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>056</td>
<td>NORSAT</td>
<td>124</td>
<td>UNIDEN</td>
<td>016</td>
</tr>
<tr>
<td></td>
<td>076</td>
<td>PACE SKY SATELLITE</td>
<td>125</td>
<td></td>
<td>025</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PANASONIC</td>
<td>143</td>
<td></td>
<td>042</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PANSAT</td>
<td>060</td>
<td></td>
<td>043</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>142</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELECTRO HOME EUROPUS</td>
<td>089</td>
<td>PERSONAL CABLE</td>
<td>117</td>
<td>VIEWSTAR</td>
<td>115</td>
</tr>
<tr>
<td></td>
<td>114</td>
<td>PHILIPS</td>
<td>071</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PICO</td>
<td>105</td>
<td>WINEGARD</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PRESIDENT</td>
<td>019</td>
<td></td>
<td>146</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PRIMESTAR</td>
<td>010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HITACHI</td>
<td>139</td>
<td></td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IR CODES

1. How to Connect

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

2. Remote Control IR Codes

- Output waveform
  Single pulse, modulated with 37.917KHz signal at 455KHz

- Configuration of frame
  1st frame

<table>
<thead>
<tr>
<th>Lead code</th>
<th>Low custom code</th>
<th>High custom code</th>
<th>Data code</th>
<th>Data code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0 C1 C2 C3 C4 C5 C6 C7</td>
<td>C0 C1 C2 C3 C4 C5 C6 C7</td>
<td>D0 D1 D2 D3 D4 D5 D6 D7</td>
<td>D0 D1 D2 D3 D4 D5 D6 D7</td>
<td></td>
</tr>
</tbody>
</table>

Repeat frame

<table>
<thead>
<tr>
<th>Repeat code</th>
<th>Tf</th>
</tr>
</thead>
</table>

- Lead code

  9 ms

- Repeat code

  0.55 ms

- Bit description

  Bit "0"

  0.56 ms

  1.12 ms

  Bit "1"

  0.56 ms

  2.24 ms

- Frame interval: Tf
  The waveform is transmitted as long as a key is depressed.

  Tf

  Tf

  Tf=108ms @455KHz
<table>
<thead>
<tr>
<th>Code (Hexa)</th>
<th>Function</th>
<th>Note</th>
<th>Code (Hexa)</th>
<th>Function</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>08</td>
<td>POWER</td>
<td>Remote control Button (Power On/Off)</td>
<td>D6</td>
<td>TV</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>45</td>
<td>Q.MENU</td>
<td>Remote control Button</td>
<td>C4</td>
<td>POWER ON</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>43</td>
<td>MENU</td>
<td>Remote control Button</td>
<td>0B</td>
<td>INPUT</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>10-19</td>
<td>Number Key 0-9</td>
<td>Remote control Button</td>
<td>C5</td>
<td>POWER OFF</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>4C</td>
<td>- (Dash)</td>
<td>Remote control Button</td>
<td>09</td>
<td>MUTE</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>02</td>
<td>VOL +</td>
<td>Remote control Button</td>
<td>03</td>
<td>VOL -</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>00</td>
<td>CH ∧</td>
<td>Remote control Button</td>
<td>BF</td>
<td>COMPONENT</td>
<td>Component Input Selection</td>
</tr>
<tr>
<td>1E</td>
<td>FAV</td>
<td>Remote control Button</td>
<td>D4</td>
<td>Built-In DVD</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>40</td>
<td>▲</td>
<td>Remote control Button</td>
<td>D5</td>
<td>RGB-PC</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>06</td>
<td>›</td>
<td>Remote control Button</td>
<td>CE</td>
<td>HDMI1</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>44</td>
<td>ENTER</td>
<td>Remote control Button</td>
<td>CC</td>
<td>HDMI2</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>5B</td>
<td>RETURN</td>
<td>Remote control Button</td>
<td>7E</td>
<td>SIMPLINK</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>30</td>
<td>AV MODE</td>
<td>Remote control Button</td>
<td>E9</td>
<td>HDMI3</td>
<td>Discrete IR Code</td>
</tr>
<tr>
<td>8F</td>
<td>REC</td>
<td>Remote control Button</td>
<td>76</td>
<td>Ratio 4:3</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>8E</td>
<td>FF</td>
<td>Remote control Button</td>
<td>77</td>
<td>Ratio 16:9</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>6B</td>
<td>DISC MENU</td>
<td>Remote control Button</td>
<td>BF</td>
<td>COMPONENT</td>
<td>Component Input Selection</td>
</tr>
<tr>
<td>B3</td>
<td>SKIP +</td>
<td>Remote control Button</td>
<td>8F</td>
<td>REW</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>B2</td>
<td>SKIP -</td>
<td>Remote control Button</td>
<td>8E</td>
<td>FF</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>3C</td>
<td>SLOW +</td>
<td>Remote control Button</td>
<td>CA</td>
<td>EJECT</td>
<td>Remote control Button</td>
</tr>
<tr>
<td>3D</td>
<td>SLOW -</td>
<td>Remote control Button</td>
<td>6B</td>
<td>DISC MENU</td>
<td>Remote control Button</td>
</tr>
</tbody>
</table>
EXTERNAL CONTROL THROUGH RS-232C

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

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

RS-232C Setup

Type of Connector; D-Sub 9-Pin Male

<table>
<thead>
<tr>
<th>No.</th>
<th>Pin Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No connection</td>
</tr>
<tr>
<td>2</td>
<td>RXD (Receive data)</td>
</tr>
<tr>
<td>3</td>
<td>TXD (Transmit data)</td>
</tr>
<tr>
<td>4</td>
<td>DTR (DTE side ready)</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>DSR (DCE side ready)</td>
</tr>
<tr>
<td>7</td>
<td>RTS (Ready to send)</td>
</tr>
<tr>
<td>8</td>
<td>CTS (Clear to send)</td>
</tr>
<tr>
<td>9</td>
<td>No Connection</td>
</tr>
</tbody>
</table>

Communication Parameters

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

**NOTE**

- This TV has command echo back.
RS-232C Configurations

Either cable below can be used.

<table>
<thead>
<tr>
<th>7-Wire Configuration</th>
<th>3-Wire Configurations</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Serial female-female NULL modem cable)</td>
<td>(Not standard)</td>
</tr>
<tr>
<td><strong>PC</strong></td>
<td><strong>TV</strong></td>
</tr>
<tr>
<td>RXD 2</td>
<td>TXD 3</td>
</tr>
<tr>
<td>TXD 3</td>
<td>RXD 2</td>
</tr>
<tr>
<td>GND 5</td>
<td>GND 5</td>
</tr>
<tr>
<td>DTR 4</td>
<td>DSR 6</td>
</tr>
<tr>
<td>DSR 6</td>
<td>DTR 4</td>
</tr>
<tr>
<td>RTS 7</td>
<td>CTS 8</td>
</tr>
<tr>
<td>CTS 8</td>
<td>RTS 7</td>
</tr>
<tr>
<td>D-Sub 9</td>
<td>D-Sub 9</td>
</tr>
</tbody>
</table>

Set ID

Use this function to specify a TV ID number.
Refer to ‘Real Data Mapping1’. ➤ p.118.

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

<table>
<thead>
<tr>
<th>COMMAND1</th>
<th>COMMAND2</th>
<th>DATA (Hexadecimal)</th>
<th>COMMAND1</th>
<th>COMMAND2</th>
<th>DATA (Hexadecimal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01. Power</td>
<td>k</td>
<td>a</td>
<td>14. Treble</td>
<td>k</td>
<td>r</td>
</tr>
</tbody>
</table>
| 02. Input Select | x       | b                  | 15. Bass   | k        | s                  | 00 – 64
| 03. Aspect Ratio | k       | c                  | 16. Balance | k       | t                  | 00 – 64
| 04. Screen Mute | k       | d                  | 17. Color Temperature | k | u | 00 – 02
| 05. Volume Mute | k       | e                  | 18. Auto Configuration | j | u | (p. 118)
| 06. Volume Control | k       | f                  | 20. Channel Add/Del | m | b | 00 – 01
| 07. Contrast | k       | g                  | 21. Key    | m       | c | (p. 119)
| 08. Brightness | k       | h                  | 22. Backlight | m | g | 00 – 64
| 09. Color | k       | i                  | 00 – 64    |          |                  |
| 10. Tint  | k       | j                  | 00 – 64    |          |                  |
| 11. Sharpness | k       | k                  | 00 – 64    |          |                  |
| 12. OSD Select | k       | l                  | 00 – 01    |          |                  |
| 13. Remote Control Lock Mode | k       | m                  | 00 – 01    |          |                  |
| 19. Channel Tuning | m       | a                  | physical program high | DATA00 | DATA01 | DATA02 | DATA03 | DATA04 | DATA05 | physical program low | major low | minor high | minor low | attribute |

### Physical Attributes
- DATA00: physical high
- DATA01: physical low
- DATA02: major high
- DATA03: minor high
- DATA04: minor low
- DATA05: attribute
Transmission / Receiving Protocol

Transmission

\[
[\text{Command}_1] [\text{Command}_2] [\text{Set ID}] [\text{DATA}] [\text{Cr}]
\]

- **[Command 1]**: First command to control the set. (j, k, m or x)
- **[Command 2]**: Second command to control the set.
- **[Set ID]**: You can adjust the set ID to choose desired TV ID number in Setup menu. Adjustment range is 1 ~ 99. When selecting Set ID ‘0’, every connected TV is controlled. Set ID is indicated as decimal (1 ~ 99) on menu and as Hexa decimal (0x0 ~ 0x63) on transmission/receiving protocol.
- **[DATA]**: The data command. Responds with an acknowledgement after transmitting.
- **[Cr]**: Carriage Return
  - ASCII code ‘0x0D’
- **[]**: ASCII code ‘space (0x20)’

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

OK Acknowledgement

\[
[\text{Command}_2] [\text{Set ID}] [\text{OK}] [\text{DATA}] [\text{x}]
\]

The TV transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

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

Error Acknowledgement

\[
[\text{Command}_2] [\text{Set ID}] [\text{NG}] [\text{DATA}] [\text{x}]
\]

The TV transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.
- **Data1**: Illegal Code
- **Data2**: Not supported function
- **Data3**: Wait more time

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

* Data Format
- **[Command 2]**: Use as command.
- **[Set ID]**: Uses lower case, if set ID is 10, it will send the ‘0’, ‘a’.
- **[DATA]**: Uses lower case, if data is 0 x ab, it will send the ‘a’, ‘b’.
- **[OK]**: Uses upper case.

* Data Format
- **[Command 2]**: Use as command.
- **[Set ID]**: Uses lower case, if set ID is 10, it will send the ‘0’, ‘a’.
- **[DATA]**: Uses lower case, if data is 0 x ab, it will send the ‘a’, ‘b’.
- **[NG]**: Uses upper case.
01. Power (Command: k a)
To control Power On/Off of the TV.

Transmission  [k][a][ ][Set ID][ ][Data][Cr]
Data 00: Power Off  Data 01: Power On

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

* Note: The TV will send the acknowledgement after power on processing completion. There might be a time delay between command and acknowledgement.

02. Input Select (Command: x b)
To select an input source for the TV.

Transmission  [x][b][ ][Set ID][ ][Data][Cr]
Data 00: DTV (Antenna)  Data 01: DTV (Cable)
Data 10: Analog (Antenna)  Data 11: Analog (Cable)
Data 20: AV1  Data 21: AV2
Data 40: Component  Data 41: Built-In DVD
Data 60: RGB-PC  Data 90: HDMI1
Data 91: HDMI2  Data 92: HDMI3

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

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 04: Zoom 1  Data 09: Set by program
Data 06: Just scan
Data 09: Just scan
Data 01: 4:3  Data 02: 16:9
Data 04: Zoom 1  Data 09: Set by program
Data 09: Just scan

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)
Data 01: Screen mute on (Picture off)

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

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

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’. See page 118.

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’. See page 118.

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’. See page 118.

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’. See page 118.

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’. See page 118.

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’. See page 118.

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 TV, use this mode. When main power is on/off, remote control lock is released.

14. Treble (Command: k r)
To adjust treble.

You can also adjust treble in the AUDIO menu.

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

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

*Refer to ‘Real data mapping’ as shown.

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

15. Bass (Command: k s)
To adjust bass.

You can also adjust bass in the AUDIO menu.

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

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

*Refer to ‘Real data mapping’ as shown.

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

16. Balance (Command: k t)
To adjust balance.

You can also adjust balance in the AUDIO menu.

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

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

*Refer to ‘Real data mapping’ as shown.

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

17. Color Temperature (Command: k u)
To adjust color temperature.

You can also adjust color temperature in the PICTURE menu.

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

Data 00: Medium  01: Cool  02: Warm

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

18. Auto Configuration (Command: j u)
To adjust picture position and minimize image shaking automatically. Auto configuration only works in RGB-PC mode.

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

Data 01: To set

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

*Real data mapping
0 : Step 0
A : Step 10 (SET ID 10)
F : Step 15 (SET ID 15)
10 : Step 16 (SET ID 16)
63 : Step 99 (SET ID 99)
64 : Step 100

19. Channel Tuning (Command: m a)
To tune channel to following physical/major/minor number.

Transmission [m][a][ ][Set ID][ ][Data00][ ][Data01][ ][Data02][ ][Data03][ ][Data04][ ][Data05][Cr]

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

Data 00: Physical Channel Number

NTSC air: 02~45, NTSC cable: 01, 0E~7D
ATSC air: 01~45, ATSC cable: 01~87

Data 01 & 02: Major Channel Number

Data 01: High byte
Data 02: Low byte

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

Data 03 & 04: Minor Channel Number

Not needed for NTSC.
Data5:
The table above lists the binary code which must be converted to Hexadecimal before sending. For example:
The binary code to tune the sub source to an NTSC cable channel is “1000 0001”, which translates to “81” in Hex.

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

* Tune Command Examples:

1. Tune to the analog (NTSC) cable channel 35.
   Data  00 = Physical of 35 = 23
   Data 01 & 02 = No Major = 00 00
   Data 03 & 04 = No Minor = 00 00
   Data 05 = 0000 0001 in binary = 01
   Total = ma 00 23 00 00 00 00 01
2. Tune to the digital (ATSC) local channel 30-3.
   Data  00 = Don’t know Physical = 00
   Data 01 & 02 = Major is 30 = 00 1E
   Data 03 & 04 = Minor is 3 = 00 03
   Data 05 = 0010 0010 in binary = 22
   Total = ma 00 00 00 1E 00 03 22

20. Channel Add/Del (Command: m b)
To add and delete the channels.
Transmission [m][b][ ][Set ID][ ][Data][Cr]
Data 00: Channel Delete  Data 01: Channel Add
Acknowledgement [b][ ][Set ID][ ][OK/NG][Data][x]

21. Key (Command: m c)
To send IR remote key code.
Transmission [m][c][ ][Set ID][ ][Data][Cr]
Data Key code: Refer to page 112.
Acknowledgement [c][ ][Set ID][ ][OK/NG][Data][x]

22. Backlight (Command: m g)
To adjust screen backlight.
Transmission [m][g][ ][Set ID][ ][Data][Cr]
Data Min:00 ~ Max:64 (*transmit by Hexadecimal code)
*Refer to ‘Real data mapping’. See page 118.
Acknowledgement [g][ ][Set ID][ ][OK/NG][Data][x]
OPEN SOURCE LICENSE - This feature is not available for all models.

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 share and change free software for all the reasons that are most important to you.

Noncommercial Distribution

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 they have 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.

GNU GENERAL PUBLIC LICENSE
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.
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

How to apply these terms to your new programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. 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 program’s name and a brief idea of what it does.
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the license, or (at your option) any later version.

This program 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 General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type ‘show w’. This is free software, and you are welcome to redistribute it under certain conditions; type ‘show c’ for details.

The hypothetical commands ‘show w’ and ‘show c’ should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than ‘show w’ and ‘show c’; they could even be mouse-clicks or menu items-whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a “copyright disclaimer” for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program ‘Gnomovision’ (which makes passes at compilers) written by James Hacker.

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

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this license.
GNU LESSER GENERAL PUBLIC LICENSE
Version 2.1, February 1999

Copyright (C) 1991, 1999 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.

[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 intended 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 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 you have.

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.

GNU LESSER GENERAL PUBLIC LICENSE
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 license is addressed as "you".

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

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

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

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

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

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

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of section 1 above, provided that you also meet all of these conditions:
   a) The modified work must itself be a software library.
   b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
   c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this license.
   d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

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

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

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

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

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

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

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

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

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

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

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

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

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

If such an object file uses only numerical parameters, data structure layouts and accessories, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executable containing this object code plus portions of the library will still fall under Section 6.)

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

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

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

a) Accompany the work with the complete corresponding machine-readable source code for the library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable “work that uses the Library”; as object code and/or source code, so that the user can modify the library and then relink to produce a modified executable containing the modified library. (It is understood that the user who changes the contents of definitions files in the library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user’s computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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

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

7. You may place library facilities that are a work based on the library side-by-side in a single library together with other library facilities not covered by this license, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the library, and explaining where to find the accompanying uncombined form of the same work.

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 license 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 a brief 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., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 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
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 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.

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).
APPENDIX

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 initial developer first distributes original code under the terms of this license.

(d) Notwithstanding sections 2.2(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.

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.
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 that 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 declaratory 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.

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 NPL 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.
LG Electronics Inc.