



# LCD TV | PLASMA TV OWNER'S MANUAL

## LCD TV MODELS

32LB9D\*  
42LB9DF\*  
47LB9DF\*  
52LB9DF\*

## PLASMA TV MODELS

50PY3DF\*  
60PY3DF\*  
42PB4D\*  
50PB4D\*

Please read this manual carefully before operating your set. Retain it for future reference. Record model number and serial number of the set. See the label attached on the back cover and quote this information to your dealer when you require service.



DVB is a registered trademark of the DVB Project



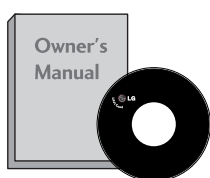
ONLY: 42LB9DF  
47LB9DF  
52LB9DF  
50PY3DF  
60PY3DF

ID Number: 4757: 32LB9D  
4756: 42LB9DF  
4755: 47LB9DF  
4754: 52LB9DF  
4709: 50PY3DF  
4708: 60PY3DF  
4836: 42PB4D  
4837: 50PB4D

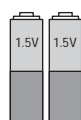


# ACCESSORIES

Ensure that the following accessories are included with your product. If an accessory is missing, please contact the dealer where you purchased the product.



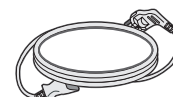
Owner's Manual



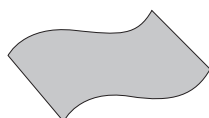
Batteries



Remote Control



Power Cord



Polishing Cloth

This feature is not available for all models.

- Carefully wipe stained spot on the exterior only with the polishing cloth for the product exterior if there is stain or fingerprint on the surface of the exterior.
- Do not wipe hard roughly when removing stain. Please be careful as excessive pressure may cause a scratch or discoloration.

## For LCD TV models



Cable Management

This feature is not available for all models.



Twist Holder  
Arrange the wires with the twist holder.



2- TV Bracket Bolts



2- TV Brackets,  
2- Wall Brackets

### 32LB9D\* only

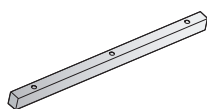


1-screw for stand fixing  
Refer to p. 10



4-bolts for stand assembly  
Refer to p. 9

## 50/60PY3DF\* only



Additional Cover  
Refer to p. 16



3 - Bolts  
Refer to p. 16

### 60PY3DF\* only



2 - Rubber  
Refer to p. 16



2- TV Bracket Bolts



2- TV Brackets,  
2- Wall Brackets

### 50PY3DF\* only



2-eye-bolts



2- Wall Brackets

This feature is not available for all models.

## 42/50PB4D\* only

This feature is not available for all models.



2-eye-bolts



2- Wall Brackets

# CONTENTS

## ACCESSORIES ..... 1

### PREPARATION

Front Panel Controls .....	4
Back Panel Information .....	6
Stand Installation .....	9
Attaching the TV to a Desk .....	10
Swivel Stand .....	10
Attaching the TV to a Wall .....	11
Back Cover for Wire Arrangement .....	12
Desktop Pedestal Installation .....	15
Wall Mount: Horizontal Installation .....	15
Not Using The Desk-type Stand .....	16
Antenna Connection .....	17

### EXTERNAL EQUIPMENT SETUP

HD Receiver Setup .....	18
DVD Setup .....	21
VCR Setup .....	23
Other A/V Source Setup .....	25
PC Setup .....	26
- Screen Setup for PC Mode .....	29
USB In Setup .....	31
AV Output Setup .....	32
Digital Audio Output Setup .....	33

### WATCHING TV / PROGRAMME CONTROL

Remote Control Key Functions .....	34
Turning on the TV .....	36
Initializing Setup .....	36
Programme Selection .....	37
Volume Adjustment .....	37
On-Screen Menus Selection and Adjustment ..	38
Factory Reset .....	39
Model Info .....	39
Auto Programme Tuning .....	40
Manual Programme Tuning .....	42
Fine Tuning .....	44

Assigning a Station Name .....	45
Programme Edit .....	46
Input List .....	48
Calling Up the Channel List .....	49
Input Source Selection .....	50
SIMPLINK .....	51
Key Lock .....	53

### XSTUDIO

Entry Modes .....	54
Photo List .....	55
Music List .....	59

### EPG(ELECTRONIC PROGRAMME GUIDE)

Switch on/off EPG .....	62
Select a programme .....	62
Button Function in NOW/NEXT Guide Mode ..	63
Button Function in 7 Days Guide Mode .....	63
Button Function in Extended Description Box ..	64
Button Function in Reservation Setting Mode ..	64

### PICTURE CONTROL

Picture Size (Aspect Ratio) Control .....	65
Preset Picture Settings	
- Picture Mode - Preset .....	66
- Auto Colour Tone Control (Warm/Medium/Cool) .....	67
Manual Picture Adjustment	
- Picture Mode - User Option .....	68
- Colour Tone - User Option. ....	69
Brightness Adjustment .....	70
XD - Picture Improvement Technology .....	71
Advanced - Cinema .....	72
Advanced - Black( Darkness) Level .....	73
Picture Reset .....	74
Image Sticking Minimization(ISM) Method .....	75
Low Power .....	76
Front Display(50/60PY3DF* only) .....	77

**SOUND & LANGUAGE CONTROL**

Auto Volume Leveler ( Auto Volume) .....	78
Preset Sound Settings- Sound Mode .....	79
Sound Setting Adjustment - User Mode .....	80
Balance .....	82
TV Speakers On/ Off Setup .....	83
I/II	
- Stereo/Dual Reception .....	84
- Speaker Sound Output Selection .....	84
Subtitle .....	85

**TIME SETTING**

Clock Setting .....	86
Auto On/ Off Timer Setting .....	88
Sleep Timer Setting .....	89
Auto Shut-off Setting .....	90

**PARENTAL CONTROL / RATINGS**

Set Password & Lock System .....	91
Programme Blocking .....	93
Parental Guidance .....	94
External Input Blocking .....	95

**TELETEXT**

Switch On/Off .....	96
Simple Text .....	96
TOP Text .....	96
Fasttext .....	97
Special Teletext Functions .....	97

**APPENDIX**

Troubleshooting .....	98
Maintenance .....	100
Product Specifications .....	101
Programming the Remote Control .....	104
IR Codes .....	107
External Control through RS-232C .....	109
Open Source License .....	115

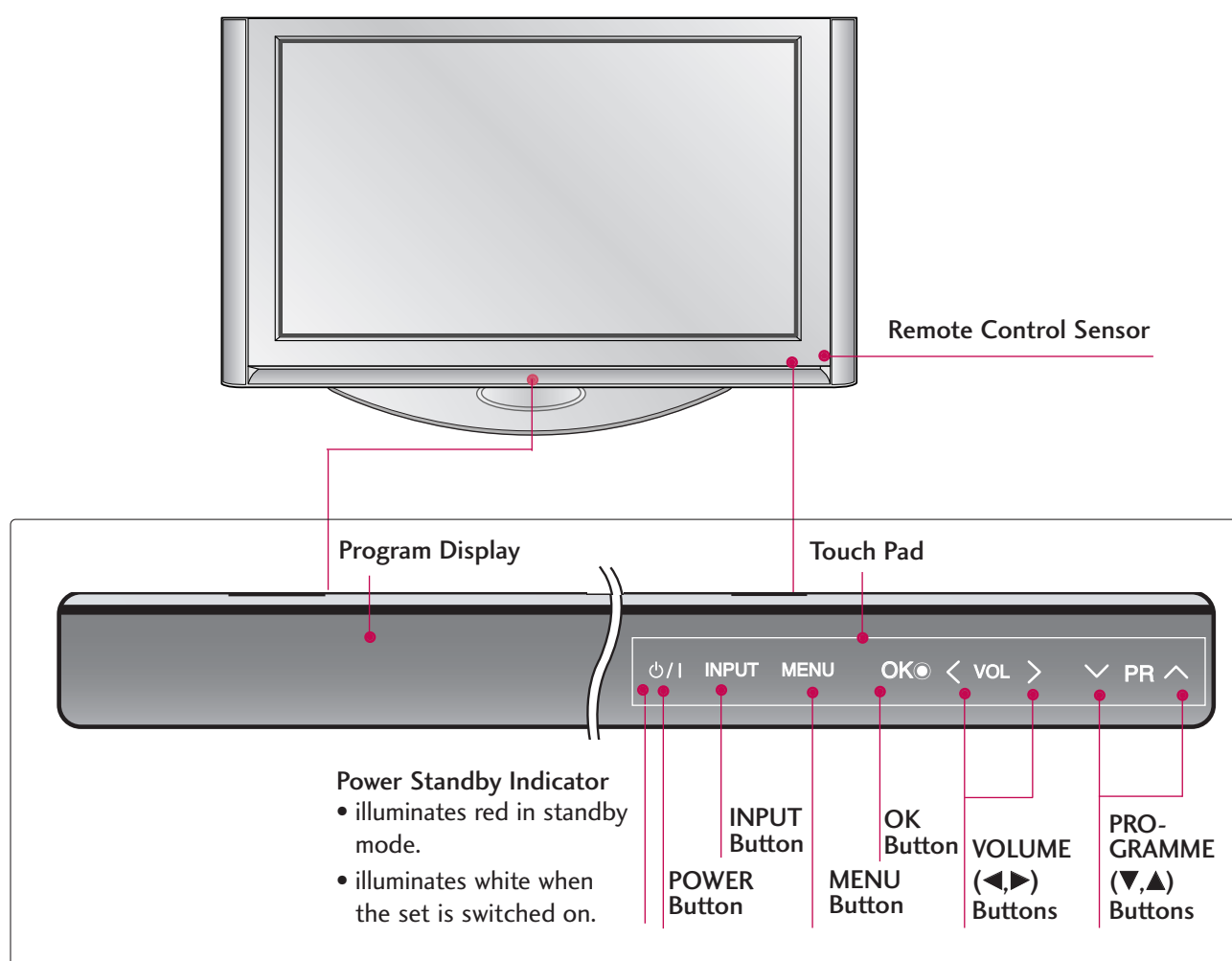
*After reading this manual, keep it handy for future reference.*

# PREPARATION

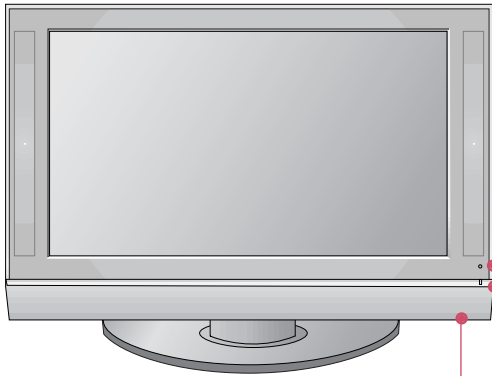
## FRONT PANEL CONTROLS

- This is a simplified representation of the front panel. Image shown may be somewhat different from your TV.
- If your product has a protection film attached, remove the film and then wipe the product with a polishing cloth.

50/60PY3DF\*



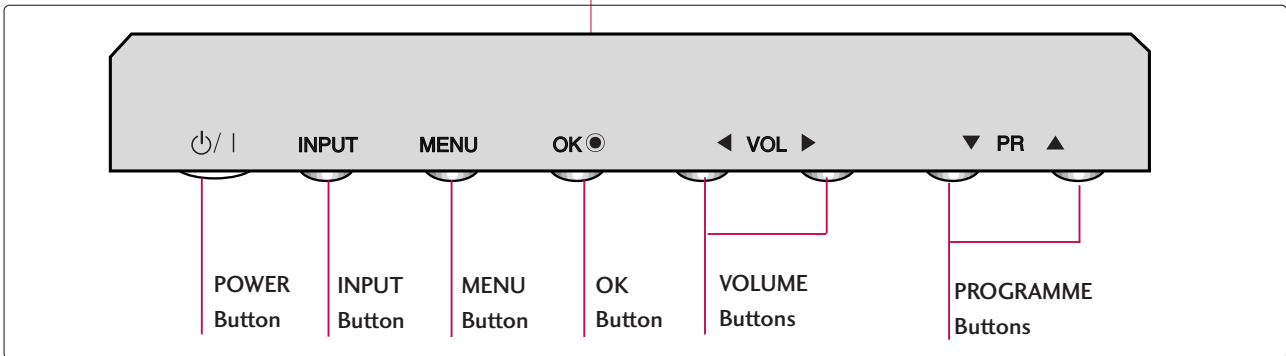
42/50PB4D\*



Remote Control Sensor

Power/Standby Indicator

- illuminates red in standby mode.
- illuminates green when the set is switched on.



POWER Button

INPUT Button

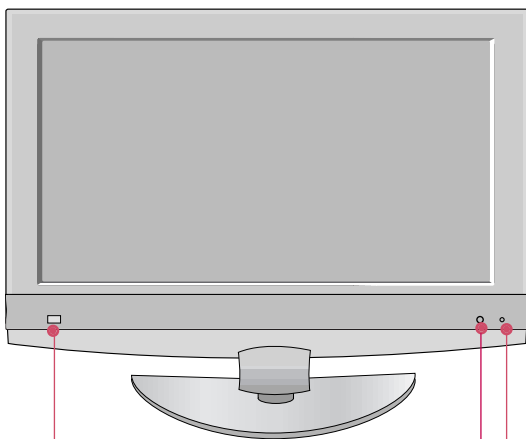
MENU Button

OK Button

VOLUME Buttons

PROGRAMME Buttons

42/47/52LB9DF\*, 32LB9D\*

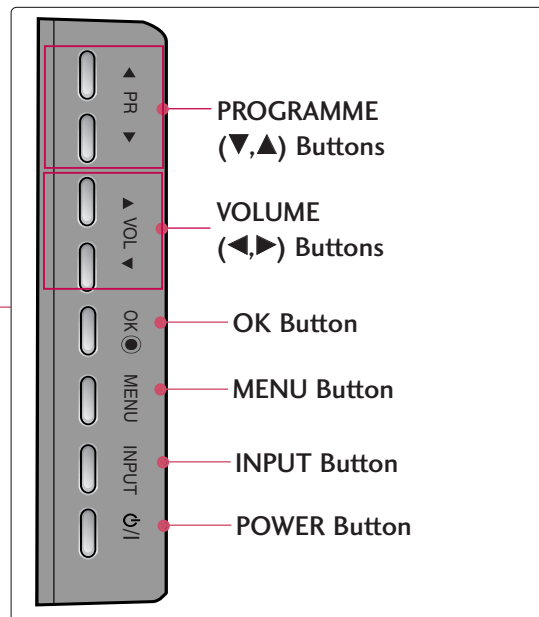


**Intelligent Eye**  
Adjusts picture according to the surrounding conditions.

Remote Control Sensor

Power/Standby Indicator

- illuminates red in standby mode.
- illuminates green when the set is switched on.



PROGRAMME (▼,▲) Buttons

VOLUME (◀,▶) Buttons

OK Button

MENU Button

INPUT Button

POWER Button

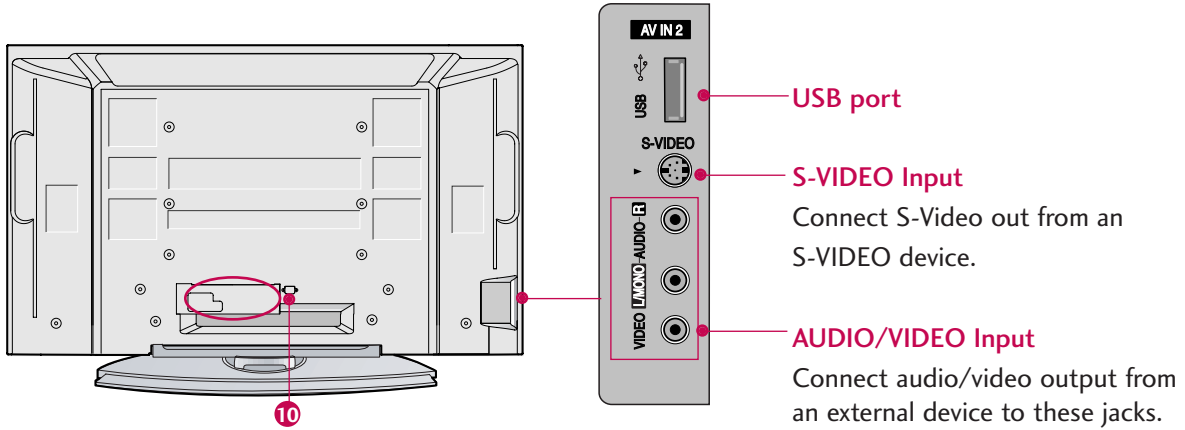
# PREPARATION

## BACK PANEL INFORMATION

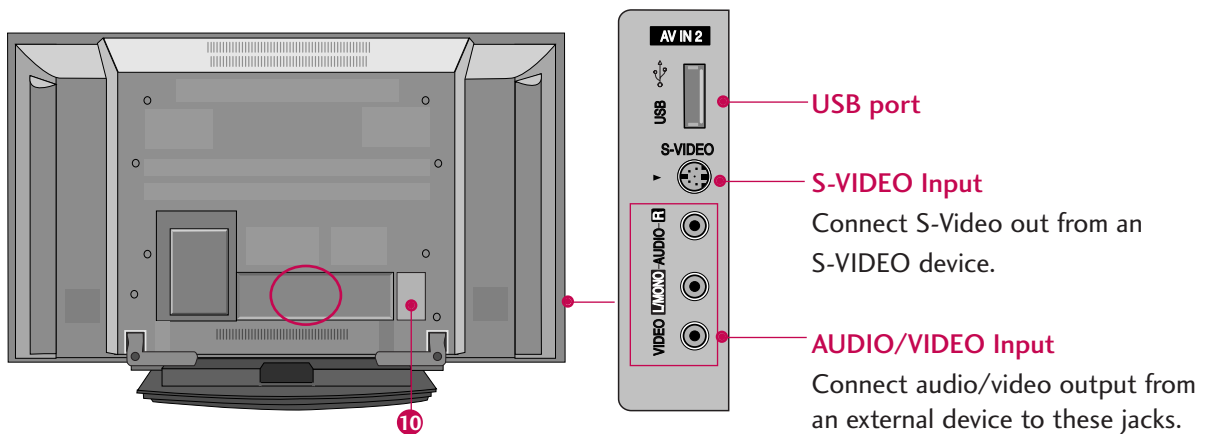
- Image shown may be somewhat different from your TV.

### Plasma TV Models

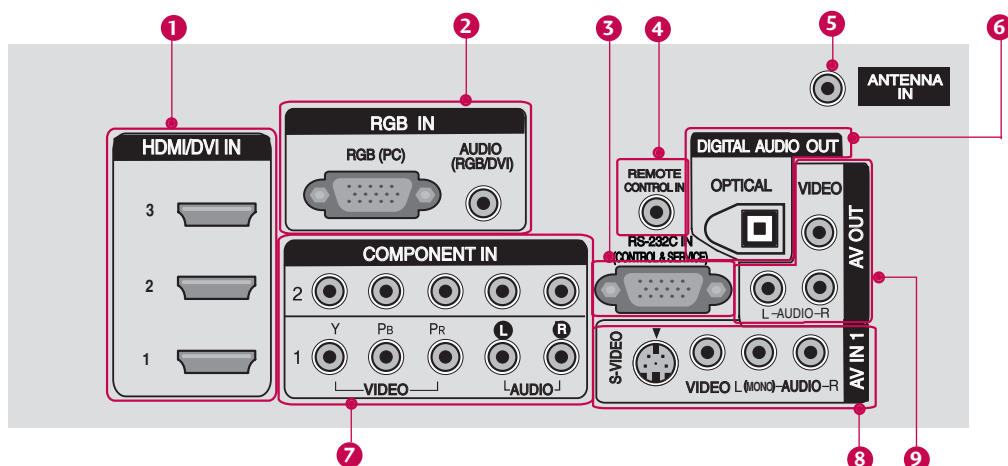
#### 50/60PY3DF\*



#### 42/50PB4D\*







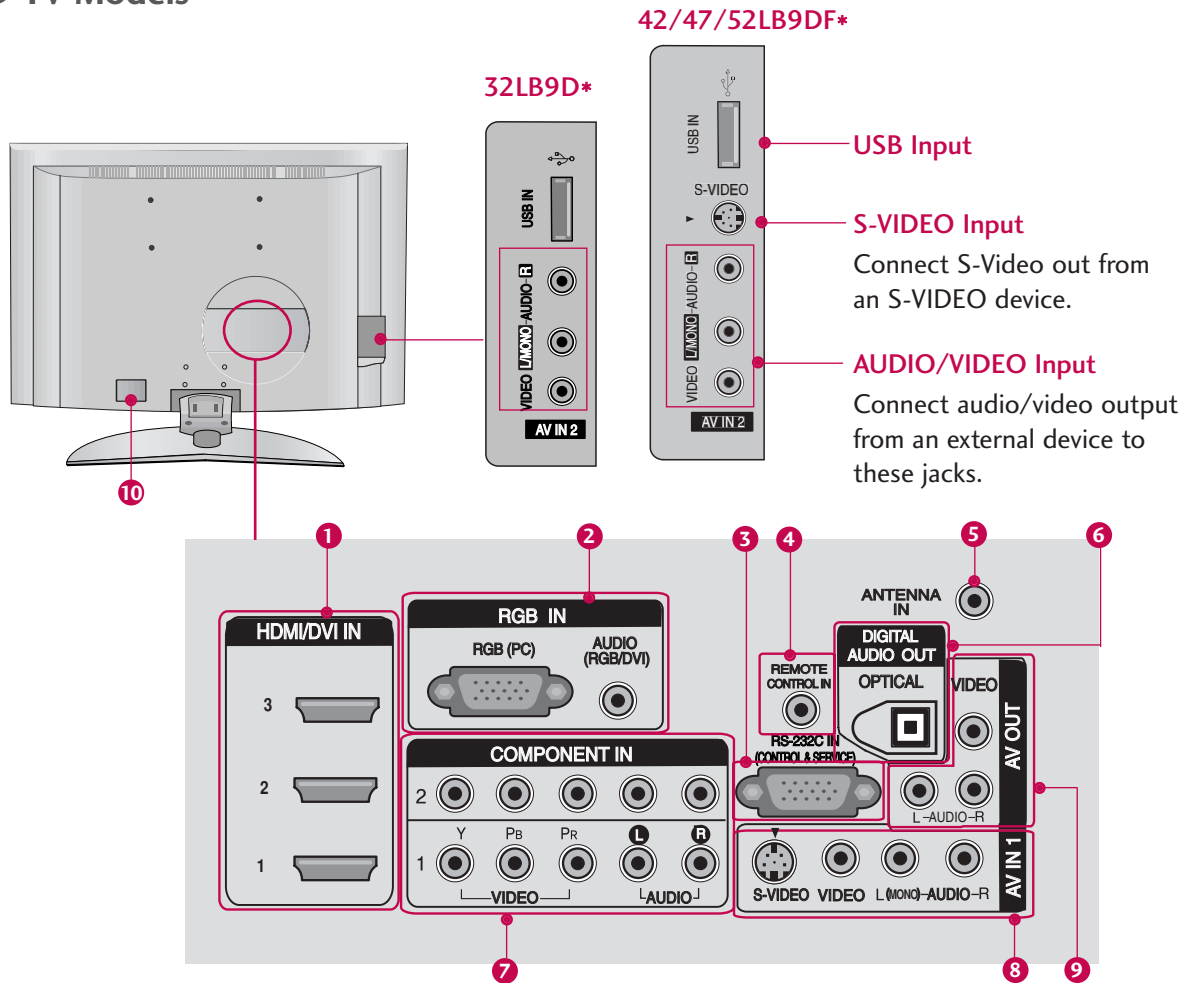
- 1 HDMI/DVI IN**  
Connect a HDMI signal.  
Or DVI(VIDEO) signal to the this port with a HDMI to DVI cable.
- 2 RGB/AUDIO IN**  
Connect the output from a set top box or PC to the appropriate input port.
- 3 RS-232C IN (CONTROL &SERVICE) PORT**  
Connect to the RS-232C port on a PC.
- 4 Remote Control Port**  
Connect your wired remote control.
- 5 ANTENNA IN**  
Connect antenna signals to this jack.
- 6 DIGITAL AUDIO OUT**  
Connect digital audio from various types of equipment. Note: In standby mode, these ports do not work.
- 7 COMPONENT IN**  
Connect a component video/audio device to these jacks.
- 8 AV (Audio/Video) IN 1**  
Connect audio/video output from an external device to these jacks.  
**S-VIDEO**  
Connect S-Video out from an S-VIDEO device.
- 9 AV OUT**  
Connect a second TV or monitor.
- 10 Power Cord Socket**  
For operation with AC power.  
Caution: Never attempt to operate the TV on DC power.

# PREPARATION

Image shown may be somewhat different from your TV.

## LCD TV Models

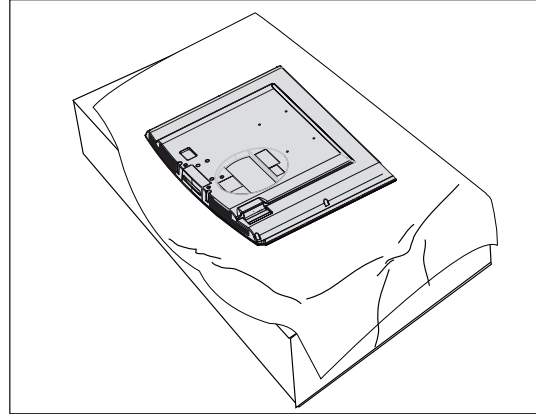
PREPARATION



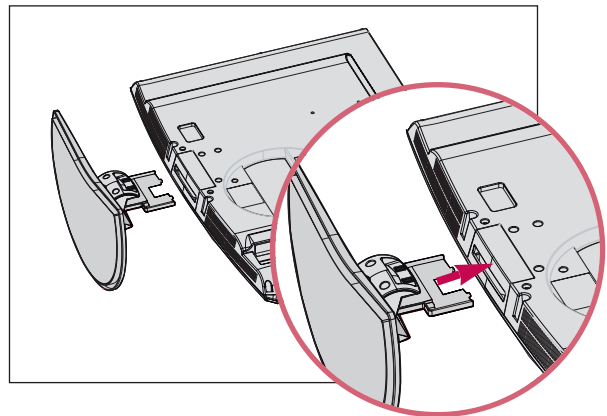
- 1 HDMI/DVI IN**  
Connect a HDMI signal.  
Or DVI(VIDEO) signal to the this port with a HDMI to DVI cable.
- 2 RGB/AUDIO IN**  
Connect the output from a set top box or PC to the appropriate input port.
- 3 RS-232C IN (CONTROL &SERVICE) PORT**  
Connect to the RS-232C port on a PC.
- 4 Remote Control Port**  
Connect your wired remote control.
- 5 ANTENNA IN**  
Connect antenna signals to this jack.
- 6 DIGITAL AUDIO OUT**  
Connect digital audio from various types of equipment. Note: In standby mode, these ports do not work.
- 7 COMPONENT IN**  
Connect a component video/audio device to these jacks.
- 8 AV (Audio/Video) IN 1**  
Connect audio/video output from an external device to these jacks.  
**S-VIDEO**  
Connect S-Video out from an S-VIDEO device.
- 9 AV OUT**  
Connect a second TV or monitor.
- 10 Power Cord Socket**  
For operation with AC power.  
Caution: Never attempt to operate the TV on DC power.

## STAND INSTALLATION (32LB9D\* Only)

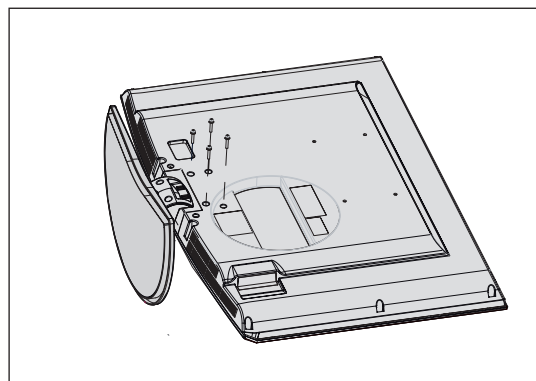
- 1 Carefully place the product screen side down on a cushioned surface that will protect product and screen from damage.



- 2 Assemble the product stand with the product as shown.



- 3 Install the 4 bolts securely, in the back of the product in the holes provided.



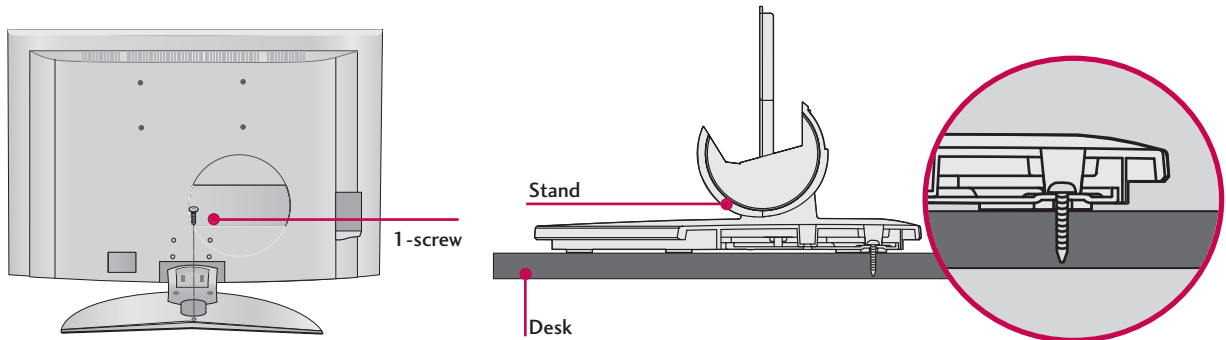
# PREPARATION

PREPARATION

## ATTACHING THE TV TO A DESK (32LB9D\* Only)

If you wish to attach the TV to a desk, it must be securely fastened to the desk using a metal screw (as shown below).

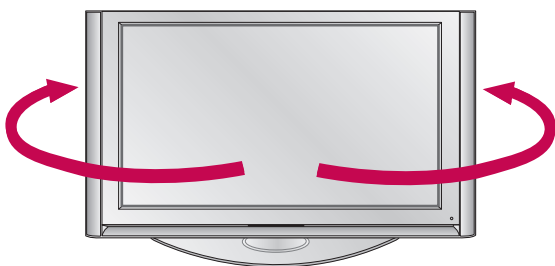
Failure to securely attach the TV may result in the TV falling: which may cause damage to the TV and serious personal injury.



## SWIVEL STAND

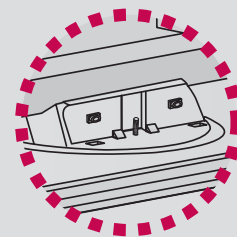
After installing the TV, you can adjust the the TV set manually to the left or right direction by 20 degrees to suit your viewing position.

50/60PY3DF\* models



### ! NOTE

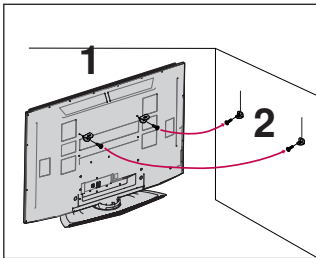
- ▶ Before adjusting the angle, you must remove the cable management and loosen (to the left) the shaft bolt on the middle of stand's back. And when stand be level with TV, you must close (to the right) the shaft bolt to set the hole.



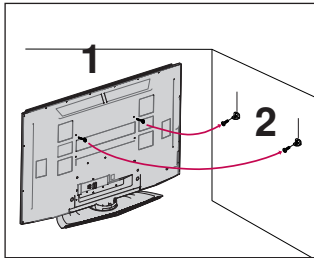
## ATTACHING THE TV TO A WALL

- This Feature is not available for all models.
- Set it up close to the wall so the product doesn't fall over when it is pushed backwards.
- The instructions shown below is a safer way to set up the product, which is to fix it on the wall so the product doesn't fall over when it is pulled in the forward direction. It will prevent the product from falling forward and hurting people. It will also prevent the product from damage caused by fall. Please make sure that children don't climb on or hang from the product.

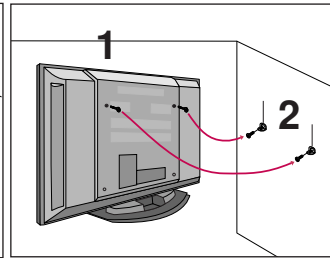
60PY3DF\*



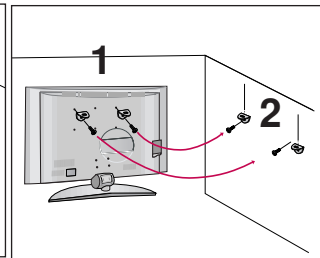
50PY3DF\*



42/50PB4D\*

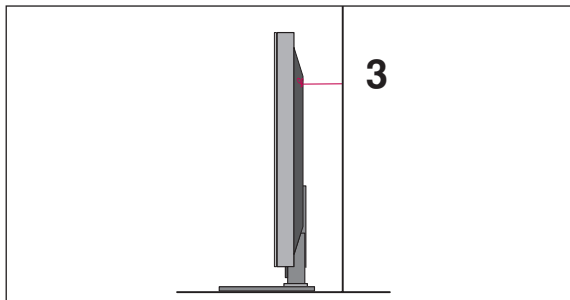


42/47/52LB9DF\*, 32LB9D\*



- 1 Use the eye-bolts or TV brackets/bolts to fix 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.

- 2 Secure the wall brackets with the bolts (not provided as parts of the product, must purchase separately) on the wall. Match the height of the bracket that is mounted on the wall.



- 3 Use a sturdy rope (not provided as parts of the product, must purchase separately) to tie the product. It is safer to tie the rope so it becomes horizontal between the wall and the product.

### ! NOTE

- ▶ When moving the product to another place undo the ropes first.
- ▶ Use a product holder or a cabinet that is big and strong enough for the size and weight of the product.
- ▶ To use the product safely make sure that the height of the bracket that is mounted on the wall is same as that of the product.

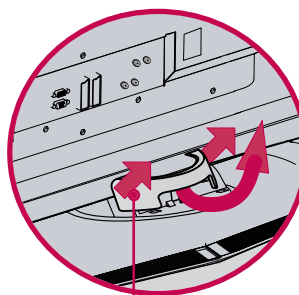
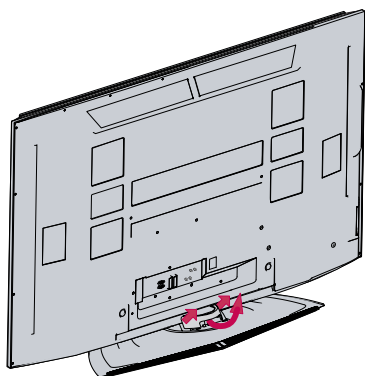
# PREPARATION

## BACK COVER FOR WIRE ARRANGEMENT

■ Here shown may be somewhat different from your TV.

50/60PY3DF\*

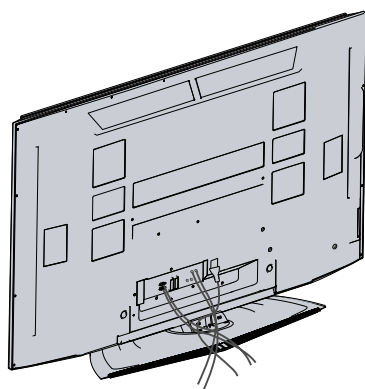
- 1 Hold the **CABLE MANAGEMENT** with both hands and pull it as shown.



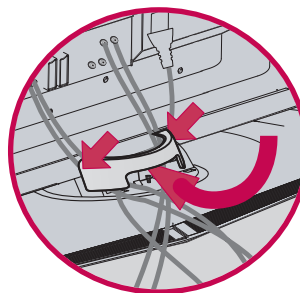
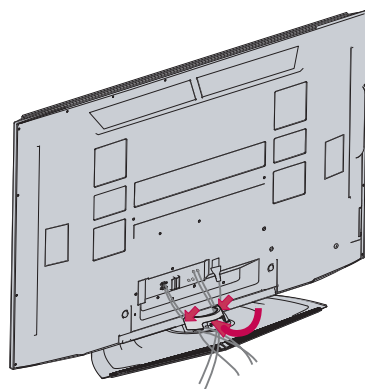
45°

CABLE MANAGEMENT

- 2 Connect the cables as necessary.  
To connect additional equipment, see the **External equipment Setup** section.

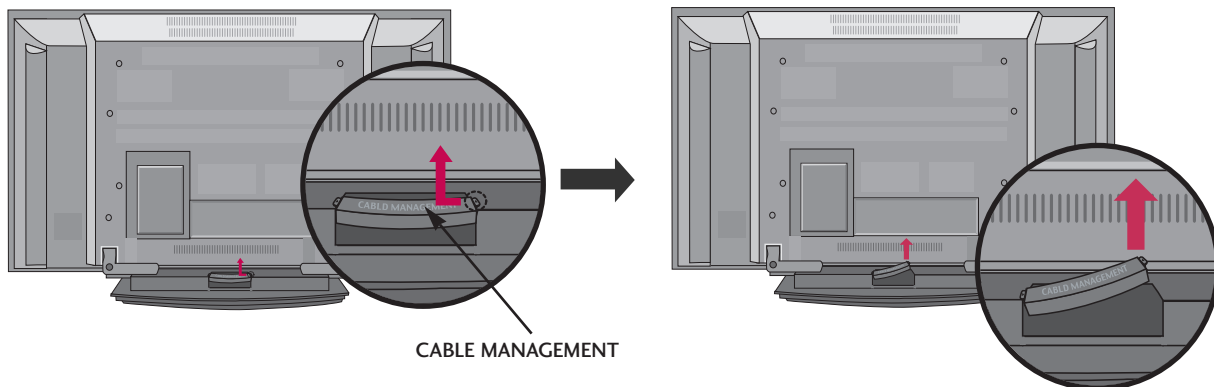


- 3 Install the **CABLE MANAGEMENT** as shown.

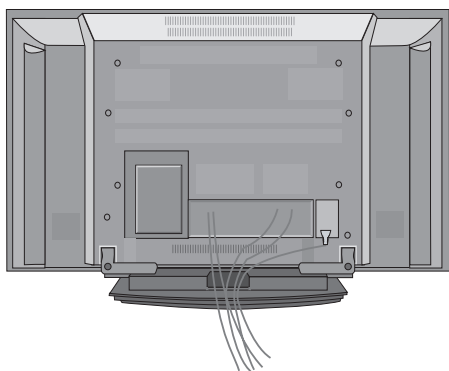


42/50PB4D\*

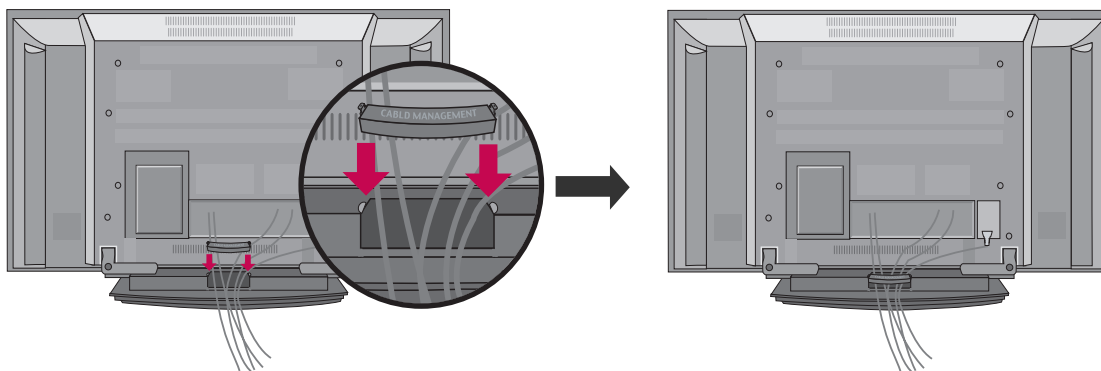
- 1 Hold the **CABLE MANAGEMENT** with hands and push it as shown.



- 2 Connect the cables as necessary.  
To connect an additional equipment, see the **External equipment Setup** section.



- 3 Reinstall the **CABLE MANAGEMENT** as shown.

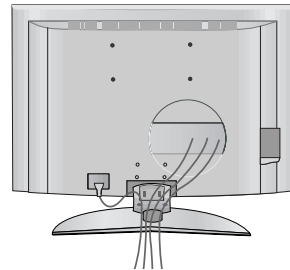


# PREPARATION

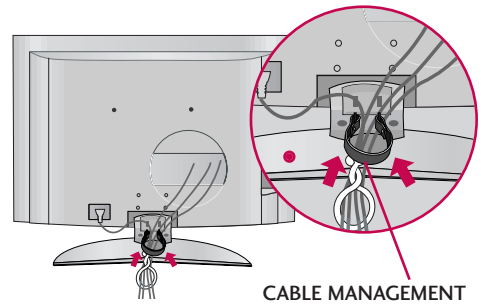
- 1 Connect the cables as necessary.

To connect additional equipment, see the **External Equipment Setup** section.

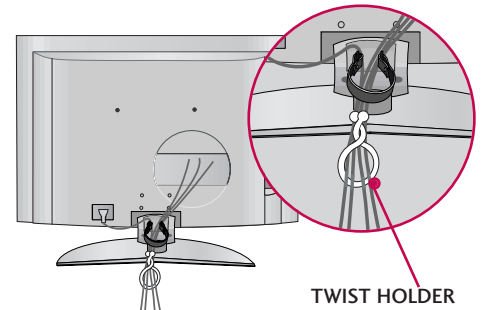
42/47/52LB9DF\*, 32LB9D\*



- 2 Install the **CABLE MANAGEMENT** as shown.  
(Insert it as pushing the loops on the both sides of the cable management.)  
(This Feature is not available for all models.)

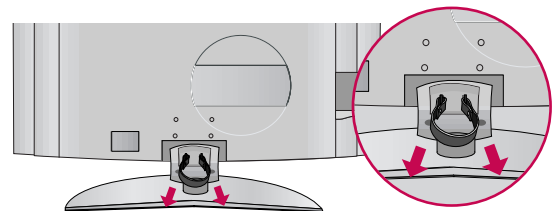


- 3 Bundle the cables using the supplied twist holder.  
(This Feature is not available for all models.)



## How to remove the cable management

Hold the **CABLE MANAGEMENT** with both hands and pull it upward.  
(Pull it out as holding the loops on the both sides of the cable management.)



### NOTE

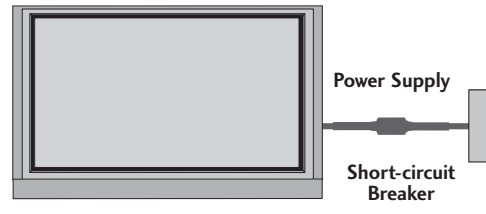
- ▶ Do not hold the **CABLE MANAGEMENT** when moving the product.
- If the product is dropped, you may be injured or the product may be broken.



## GROUNDING

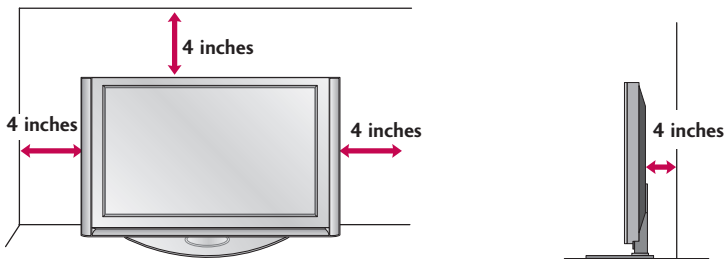
Ensure that you connect the earth ground wire to prevent possible electric shock. If grounding methods are not possible, have a qualified electrician install a separate circuit breaker.

Do not try to ground the unit by connecting it to telephone wires, lightening rods, or gas pipes.



## DESKTOP PEDESTAL INSTALLATION

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

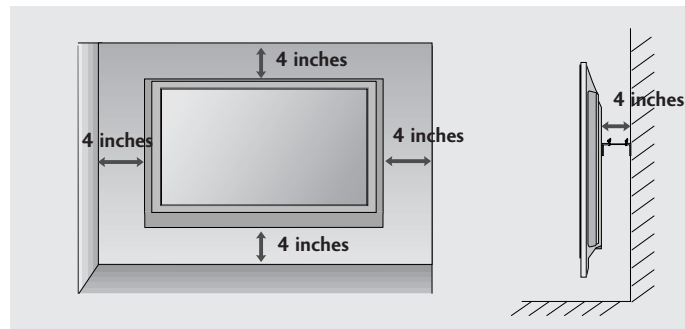
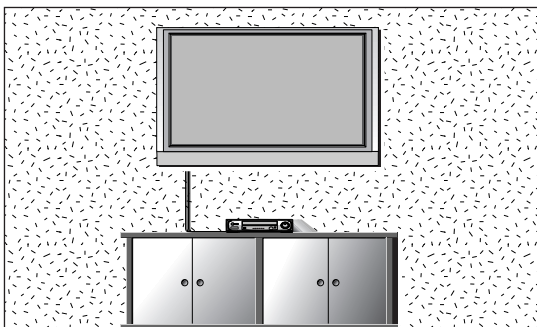


### ⚠ CAUTION

- ▶ Ensure adequate ventilation by following the clearance recommendations.

## WALL MOUNT: HORIZONTAL INSTALLATION

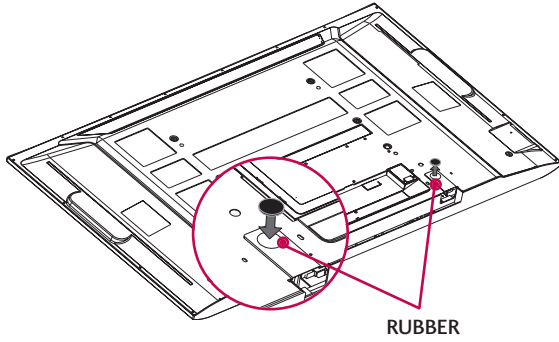
For proper ventilation, allow a clearance of 4" on each side and from the wall. Detailed installation instructions are available from your dealer.



# PREPARATION

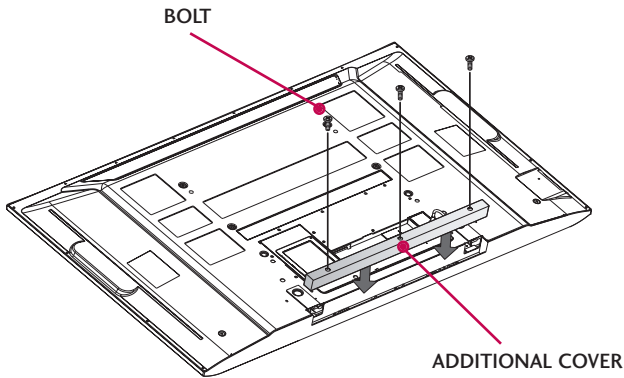
## NOT USING THE DESK-TYPE STAND (Only 50/60PY3DF\* model)

- It is applied to when installing only the 60PY3DF\* model as wall-type.



When not using the desk-type stand, install the supplied desk-type stand fixture protection rubber caps as shown at the figure.

- It is applied to when installing only the 50/60PY3DF\* model as wall-type.

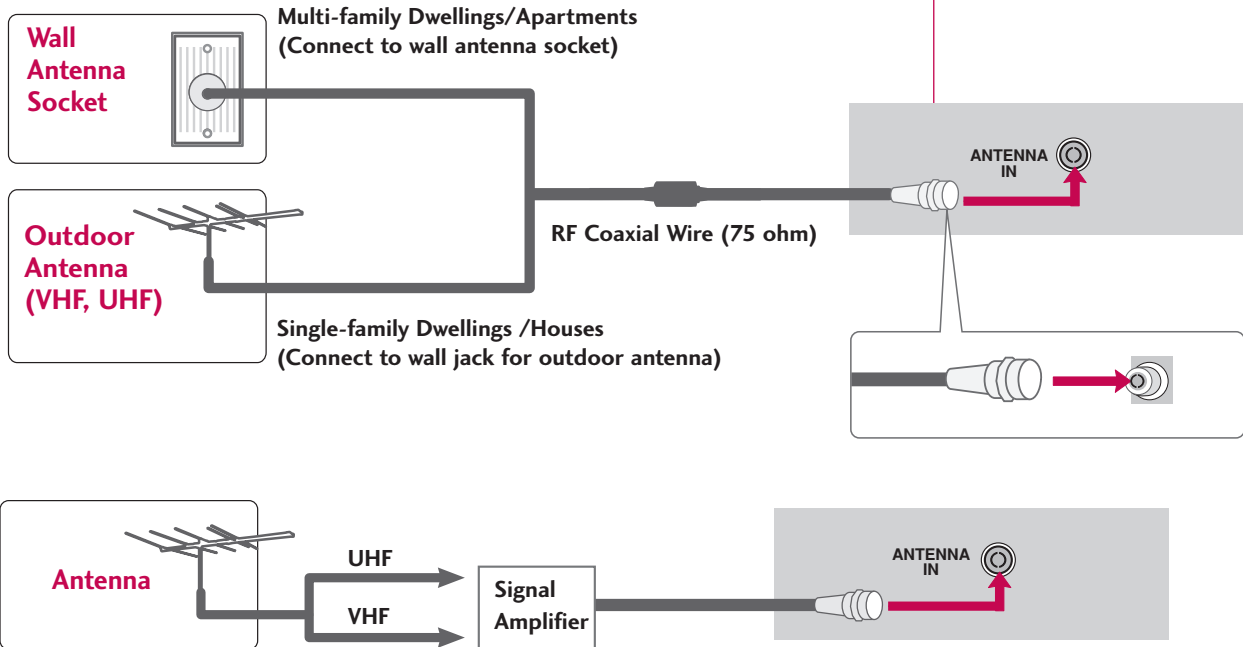
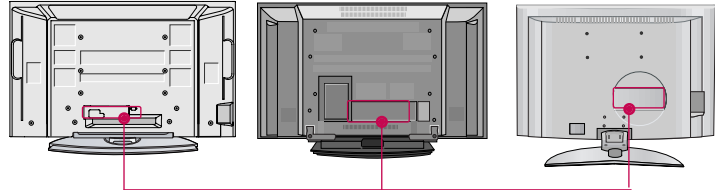


To prevent the foreign materials from entering the desk-type stand fixture, fix the desk-type stand fixture protection cover (additional cover) by using the supplied bolts as shown at the figure.

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

## ANTENNA CONNECTION

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



- 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.

### NOTE

- ▶ The TV will let you know when the analogue, cable, and digital programme scans are complete.

# EXTERNAL EQUIPMENT SETUP

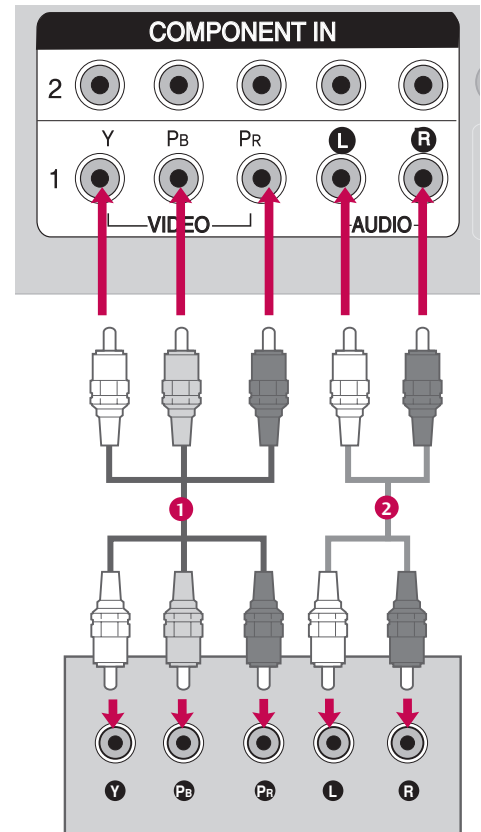
- To prevent the equipment damage, never plug in any power cords until you have finished connecting all equipment.
- This part of EXTERNAL EQUIPMENT SETUP mainly use pictures for the LCD TV models.

## HD RECEIVER SETUP

### When connecting with a Component cables

- 1 Connect the video outputs (Y, PB, PR) of the digital set top box to the **COMPONENT IN VIDEO 1** jacks on the set. Match the jack colours. (Y = green, PB = blue, and PR = red)
- 2 Connect the audio output of the digital set-top box to the **COMPONENT IN AUDIO 1** jacks on the set.
- 3 Turn on the digital set-top box. (Refer to the owner's manual for the digital set-top box.)
- 4 Select **Component 1** input source using the **INPUT** button on the remote control. If connected to **COMPONENT IN 2** input, select **Component 2** input source.

Signal	Component 1/2	HDMI/DVI 1, 2, 3
480i	Yes	No
480p	Yes	Yes
576i	Yes	No
576p	Yes	Yes
720p	Yes	Yes
1080i	Yes	Yes
1080p	Yes	Yes

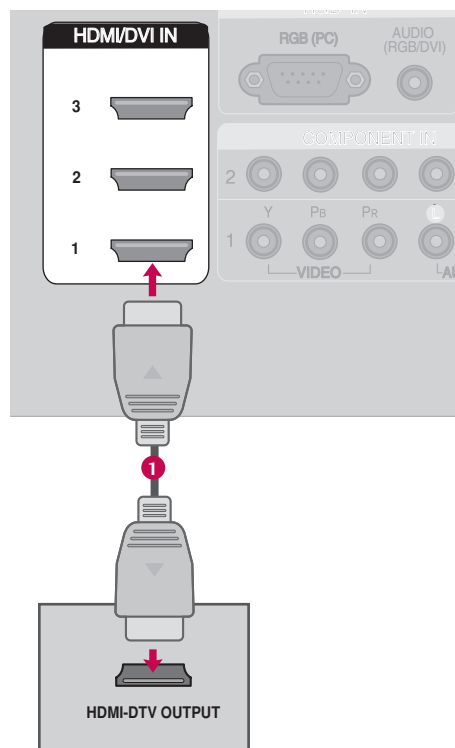


## When connecting with HDMI cable

- 1 Connect the digital set-top box to **HDMI/DVI IN1, 2 or 3** jack on the set.
- 2 No separate audio connection is necessary.
- 3 Turn on the digital set-top box.  
(Refer to the owner's manual for the digital set-top box.)
- 4 Select **HDMI1, HDMI2 or HDMI3** input source using the **INPUT** button on the remote control.

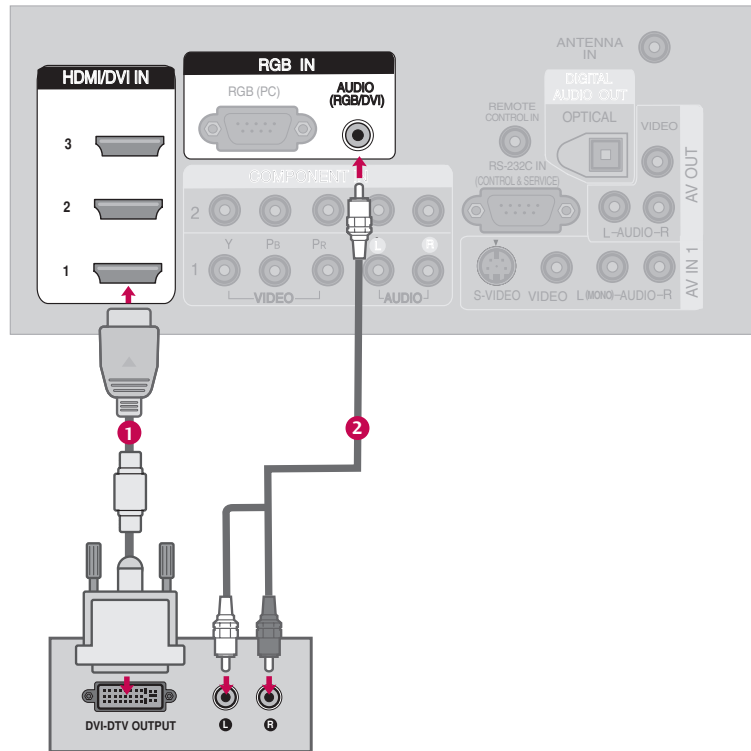
### NOTE

- ▶ If the digital set-top box supports Auto HDMI function, the output resolution of the source device will be automatically set to 1280x720p.
- ▶ If the digital set-top box player does not support Auto HDMI, you need to set the output resolution appropriately. To get the best picture quality, adjust the output resolution of the source device to 1920x1080i/1080p. (32LB9D\*, 42/50PB4D\*: 1280x720p)



# EXTERNAL EQUIPMENT SETUP

## When connecting HDMI to DVI cable

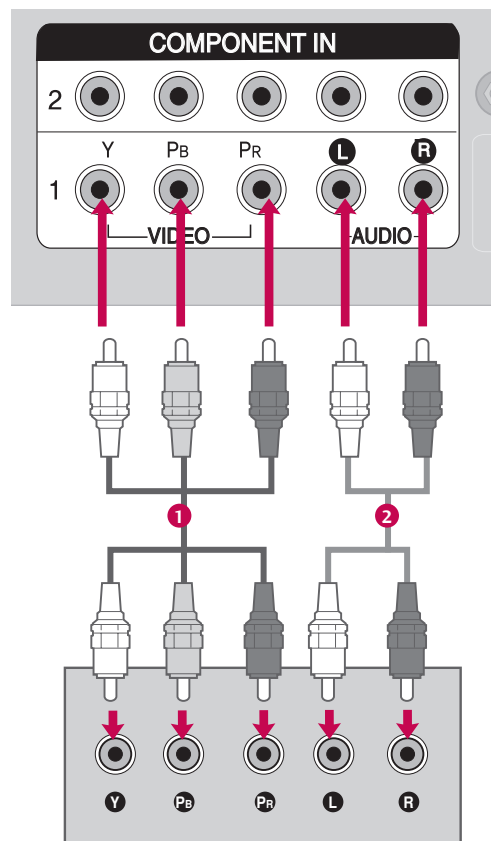


- 1 Connect the DVI output of the digital set-top box to the **HDMI/DVI IN1, 2 or 3** jack on the set.
- 2 Connect the audio output of the digital set-top box to the **AUDIO (RGB/DVI)** jack on the set.
- 3 Turn on the digital set-top box. (Refer to the owner's manual for the digital set-top box.)
- 4 Select **HDMI1, HDMI2 or HDMI3** input source with using the **INPUT** button on the remote control.

# DVD SETUP

## When connecting Component cables

- 1 Connect the video outputs (Y, PB, PR) of the DVD to the **COMPONENT IN VIDEO1** jacks on the set. Match the jack colours (Y = green, PB = blue, and PR = red).
- 2 Connect the audio outputs of the DVD to the **COMPONENT IN AUDIO1** jacks on the set.
- 3 Turn on the DVD player, insert a DVD.
- 4 Select **Component 1** input source using the **INPUT** button on the remote control. If connected to **COMPONENT IN 2** input, select **Component 2** input source.
- 5 Refer to the DVD player's manual for operating instructions.



### Component Input ports

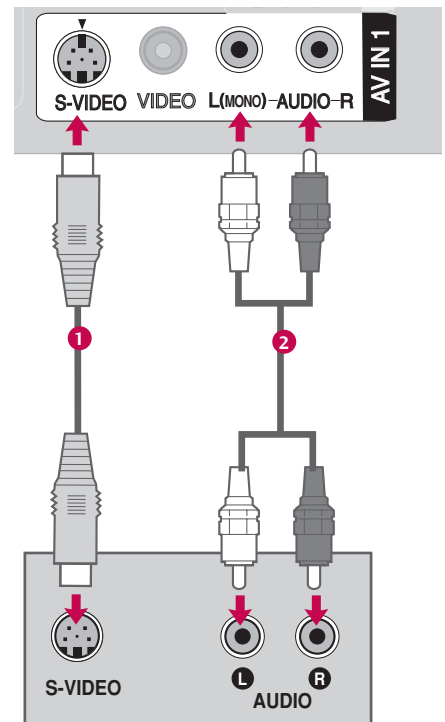
To get better picture quality, connect a DVD player to the component input ports as shown below.

Component ports on the TV	Y	P <sub>B</sub>	P <sub>R</sub>
Video output ports on DVD player	Y	P <sub>B</sub>	P <sub>R</sub>
	Y	B-Y	R-Y
	Y	C <sub>b</sub>	C <sub>r</sub>
	Y	P <sub>b</sub>	P <sub>r</sub>

# EXTERNAL EQUIPMENT SETUP

## When connecting with an S-Video cable

- 1 Connect the S-VIDEO output of the DVD to the **S-VIDEO** input on the set.
- 2 Connect the audio outputs of the DVD to the **AUDIO** input jacks on the set.
- 3 Turn on the DVD player, insert a DVD.
- 4 Select **AV1** input source using the **INPUT** button on the remote control.  
If connected to **AV IN 2** input, select **AV2** input source. (Except 32LB9D\*)
- 5 Refer to the DVD player's manual for operating instructions.

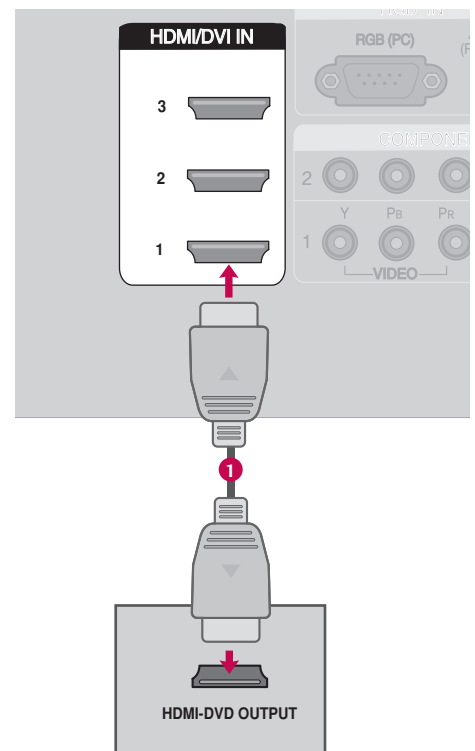


## When connecting HDMI cable

- 1 Connect the HDMI output of the DVD to the **HDMI/DVI IN1, 2 or 3** jack on the set.
- 2 No separate audio connection is necessary.
- 3 Select **HDMI1, HDMI2 or HDMI3** input source using the **INPUT** button on the remote control.
- 4 Refer to the DVD player's manual for operating instructions.

### NOTE

- ▶ If the DVD supports Auto HDMI function, the DVD output resolution will be automatically set to 1280x720p.
- ▶ If the DVD does not support Auto HDMI, you need to set the output resolution appropriately.  
To get the best picture quality, adjust the output resolution of the DVD to 1920x1080i/1080p. (32LB9D\*, 42/50PB4D\*: 1280x720p)

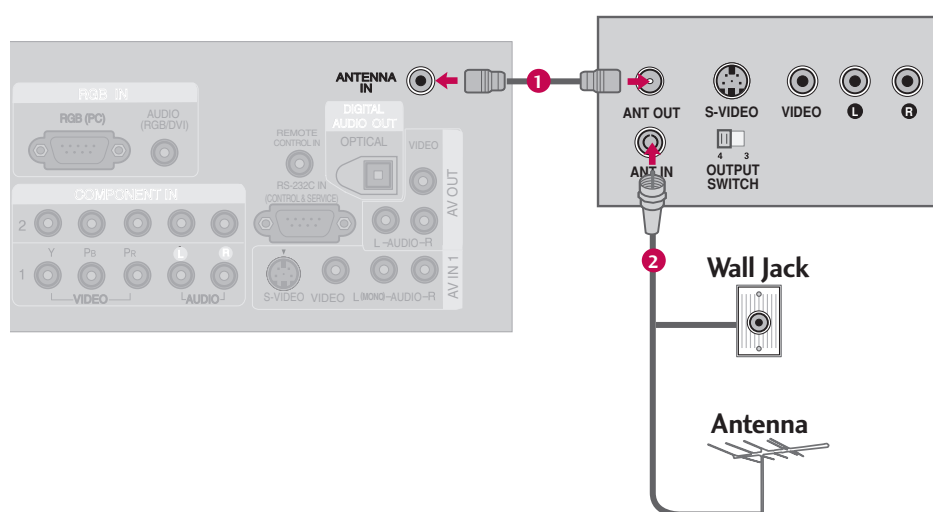




## VCR SETUP

- 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 manufacturers and in consequence the manufacturer's warranty does not cover the product bearing this phenomenon.

### When connecting with an antenna



- 1 Connect the RF antenna out socket of the VCR to the **ANTENNA IN** socket on the set.
- 2 Connect the antenna cable to the RF antenna in socket of the VCR.
- 3 Set VCR output switch to 3 or 4 and then tune TV to the same programme number.
- 4 Insert a video tape into the VCR and press PLAY on the VCR. (Refer to the VCR owner's manual.)

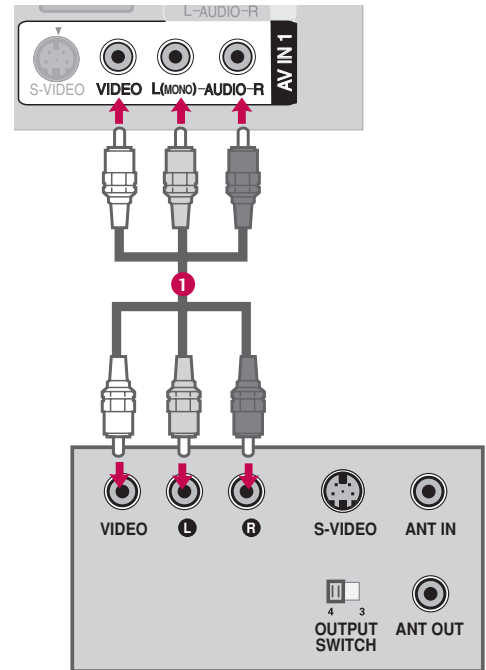
# EXTERNAL EQUIPMENT SETUP

## When connecting with an RCA cable

- 1 Connect the **AUDIO/VIDEO** jacks between TV and VCR. Match the jack colours (Video = yellow, Audio Left = white, and Audio Right = red)
- 2 Insert a video tape into the VCR and press **PLAY** on the VCR. (Refer to the VCR owner's manual.)
- 3 Select **AV1** input source using the **INPUT** button on the remote control.  
If connected to **AV IN2**, select **AV2** input source.

### NOTE

- ▶ If you have a mono VCR, connect the audio cable from the VCR to the **AUDIO L(MONO)** jack of the set.

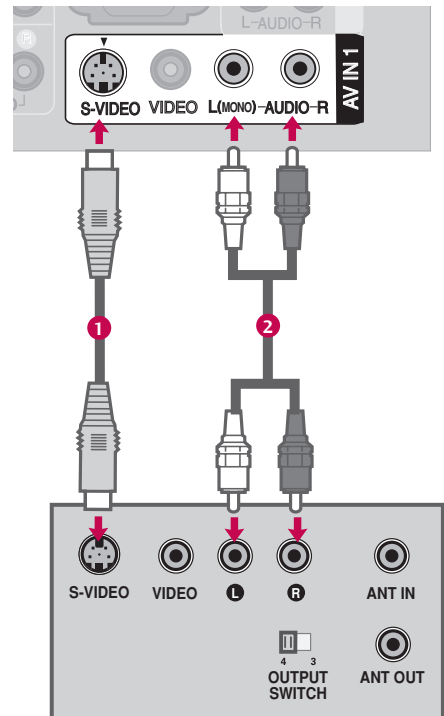


## When connecting with an S-Video cable

- 1 Connect the S-VIDEO output of the VCR to the S-VIDEO input on the set.
- 2 Connect the audio outputs of the VCR to the **AUDIO** input jacks on the set.
- 3 Insert a video tape into the VCR and press **PLAY** on the VCR. (Refer to the VCR owner's manual.)
- 4 Select **AV1** input source using the **INPUT** button on the remote control.  
If connected to **AV IN 2** input, select **AV2** input source. (Except 32LB9D\*)

### NOTE

- ▶ The picture quality is improved; compared to normal composite (RCA cable) input.

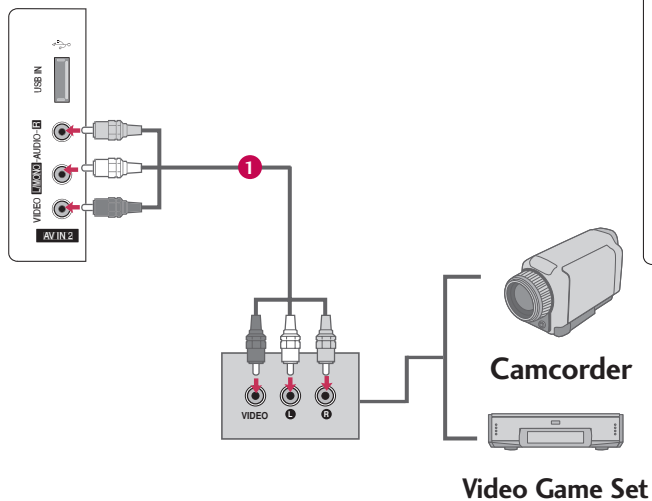


### CAUTION

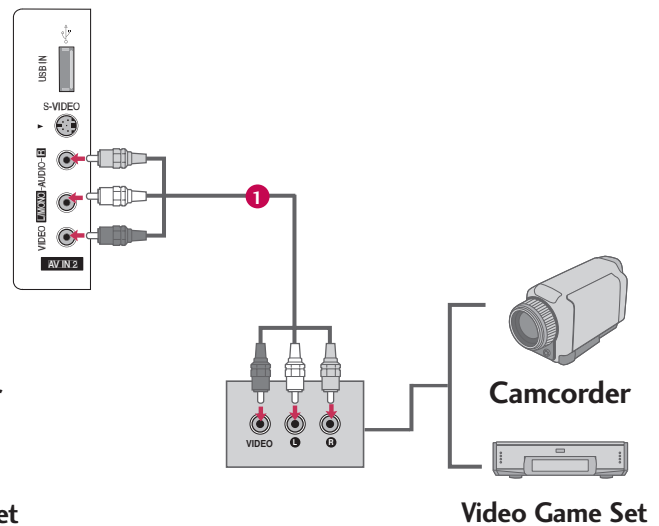
- ▶ Do not connect to both Video and S-Video at the same time. In the event that you connect both Video and the S-Video cables, only the S-Video will work.

## OTHER A/V SOURCE SETUP

32 inches



42/47/50/52/60 inches



- 1 Connect the **AUDIO/VIDEO** jacks between TV and external equipment. Match the jack colours. (Video = yellow, Audio Left = white, and Audio Right = red)
- 2 Select **AV2** input source using the **INPUT** button on the remote control. If connected to **AV IN1** input, select **AV1** input source.
- 3 Operate the corresponding external equipment.

# EXTERNAL EQUIPMENT SETUP

## PC SETUP

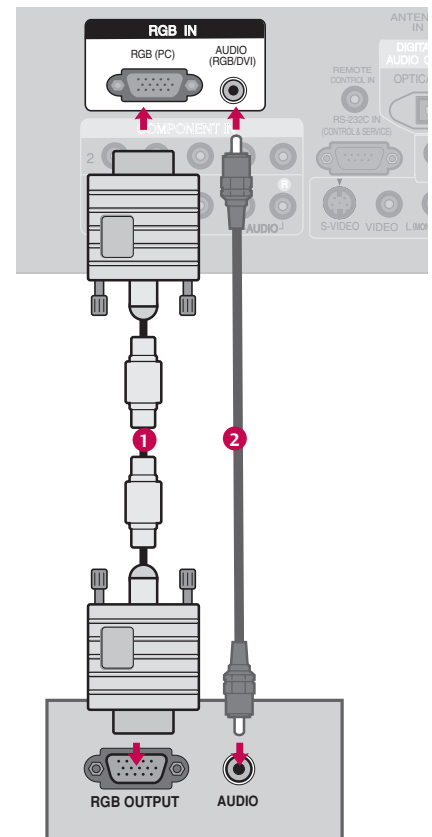
This TV provides Plug and Play capability, meaning that the PC adjusts automatically to the TV's settings. The TV perceives 1024x768, 60Hz as DTV 720p based on the PC graphic card. If necessary, change the screen scanning rate for the graphic card accordingly.

### When connecting D-sub 15pin cable

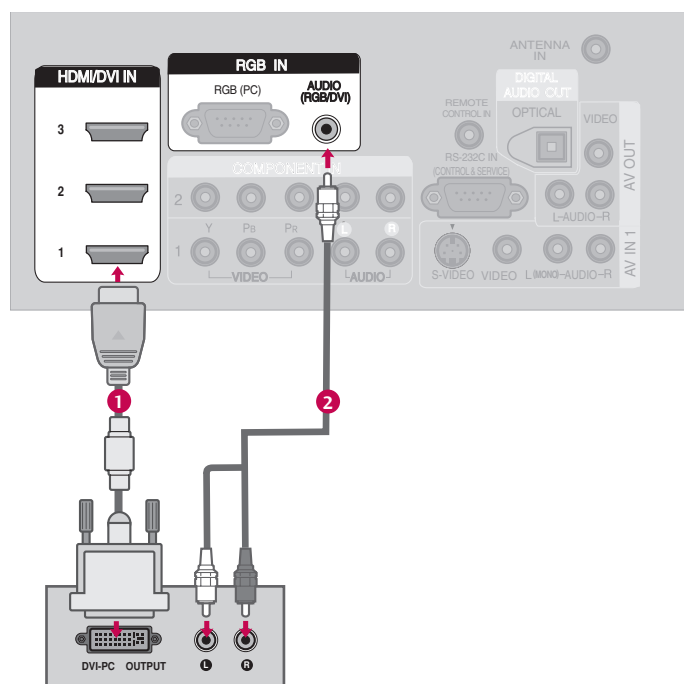
- 1 Connect the RGB output of the PC to the **RGB (PC)** jack on the set.
- 2 Connect the PC audio output to the **AUDIO (RGB/DVI)** jack on the set.
- 3 Turn on the PC and the set.
- 4 Select **RGB-PC** input source in input option of Special menu.
- 5 Once you select **RGB-PC** in input option of Special menu, **INPUT** button is also available for this purpose.

#### NOTE

- ▶ Check the image on your TV. There may be noise associated with the resolution, vertical pattern, contrast or brightness in PC mode. If noise is present, change the PC output to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the VIDEO menu until the picture is clear. If the refresh rate of the PC graphic card can not be changed, change the PC graphic card or consult the manufacturer of the PC graphic card.



## When connecting HDMI to DVI cable



- 1 Connect the DVI output of the PC to the **HDMI/DVI IN1**, **2** or **3** jack on the set.  
(Use the HDMI to DVI cable)
- 2 Connect the PC audio output to the **AUDIO (RGB/DVI)** jack on the set.
- 3 Turn on the PC and the set.
- 4 Select **HDMI1**, **HDMI2** or **HDMI3** input source using the **INPUT** button on the remote control.

### ! NOTE

- ▶ If the PC has a DVI output and no HDMI output, a separate audio connection is necessary.
- ▶ If the PC does not support Auto DVI, you need to set the output resolution appropriately. To get the best picture quality, adjust the PC graphics card's output resolution to 1920x1080, 60Hz. (42PB4D\* : 1024x768p, 32LB9D\*/50PB4D\* : 1360x768p)

# EXTERNAL EQUIPMENT SETUP

EXTERNAL EQUIPMENT SETUP

Supported Display Specifications (RGB/HDMI-PC)

Resolution	Horizontal Frequency(kHz)	Vertical Frequency(Hz)
640x480	31.469	59.940
	37.500	75.000
720x400	31.469	70.08
800x600	37.879	60.317
	46.875	75.000
1024x768	48.363	60.004
	56.476	70.069
	60.023	75.029
1280x768	47.776	59.870
1360x768	47.712	60.015
1366x768	47.13	59.65
1280x1024	63.981	60.020
	79.976	75.025
1600x1200	75.000	60.000
1920x1080	67.500	60.000

Except 32LB9D\*, 42PB4D\*

Except 50PB4D\*

Supported Display Specifications (HDMI-DTV)

Resolution	Horizontal Frequency(kHz)	Vertical Frequency(Hz)
720x576p	31.25	50.00
720x480p	31.47	59.94
	31.50	60.00
1280x720p	37.50	50.00
	44.96	59.94
	45.00	60.00
1920x1080i	33.72	59.94
	33.75	60.00
	28.125	50.00
1920x1080p	26.97	23.976
	27.00	24.00
	33.716	29.97
	33.750	30.00
	56.25	50.00
	67.43	59.94
67.50	60.00	

Supported Display Specifications (Component)

Resolution	Horizontal Frequency(kHz)	Vertical Frequency(Hz)
720x576i	15.625	50.00
720x576p	31.25	50.00
720x480i	15.75	60.00
	15.73	59.94
720x480p	31.47	59.94
	31.50	60.00
1280x720p	45.00	60.00
	44.96	59.94
	37.50	50.00
1920x1080i	33.75	60.00
	33.72	59.94
	28.125	50.00
1920x1080p	26.97	23.976
	27.00	24.00
	33.716	29.97
	33.750	30.00
	56.25	50.00
	67.43	59.94
67.50	60.00	

## NOTES

- ▶ Depending on the graphics card, DOS mode may not work if a HDMI to DVI Cable is in use.
- ▶ 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.

## Screen Setup for PC mode

### Overview

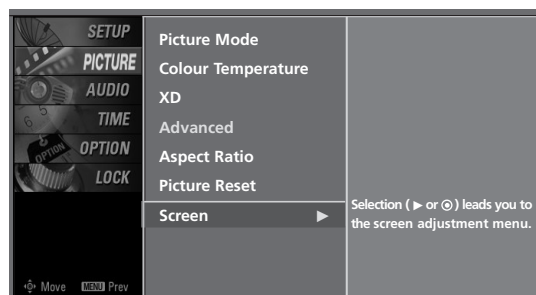
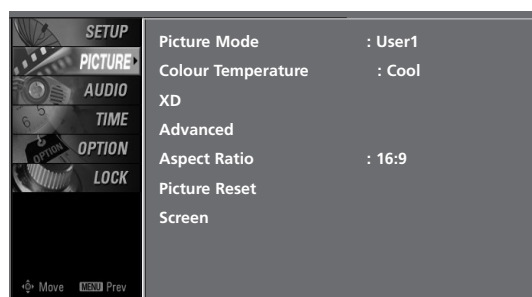
When the RGB input, of the set is connected to a PC Output, Select RGB-PC with using the **INPUT** button on the remote control.

When you change the resolution, select the proper resolution in present input to see the best picture appearance.

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

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

**3** Press the **▶** button to enter the screen adjustment menu.



# EXTERNAL EQUIPMENT SETUP

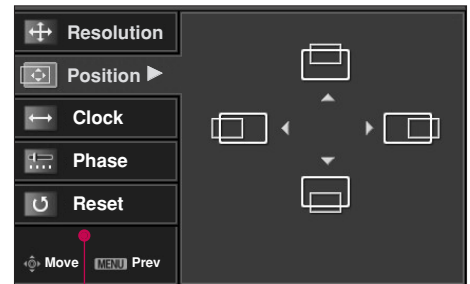
## Adjustment for screen Resolution, Position, Clock, Phase, Reset

1 Use ▲ or ▼ button to select **Resolution**, **Position**, **Clock**, or **Phase**.

2 Press the **OK** button and then use ▲ or ▼ or ◀ or ▶ button to make appropriate adjustments.

- The **Phase** adjustment range is **-16 ~ +16**.
- The **Clock** adjustment range is **-30 ~ +30**.

3 Press the **OK** button.



1 2 3

**Resolution** XGA(1024, 1280, 1360, 1366(except 50PB4D\*)) isn't distinguished because of having the same H/V Sync Time. This function is you to select the Default Sync Time.

**Position** This function is to adjust picture to left/right and up/down as you prefer.

**Clock** 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.

### Initializing (Reset to original factory values)

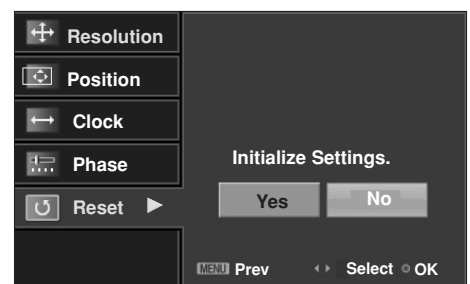
To initialize the adjusted values.

This function allows you to return to the good picture reproduction programmed at the factory and cannot be change.

1 Use ▲ or ▼ button to select **Reset**.

2 Press the **OK** button and then use ◀ or ▶ button to select **Yes**.

3 Press the **OK** button.

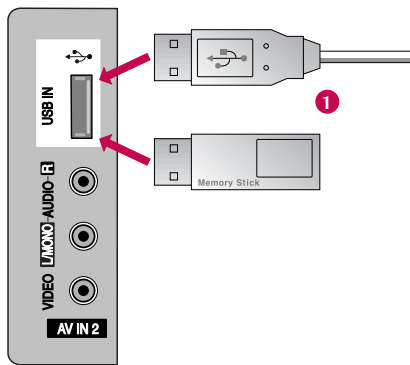


1 2 3

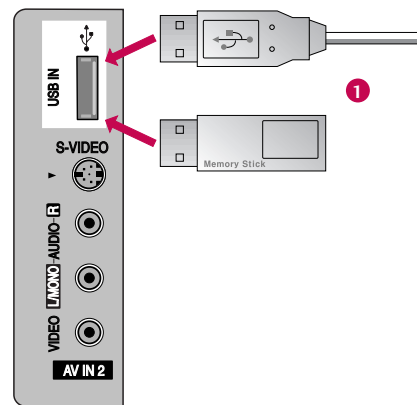


# USB IN SETUP

32 inches



42/47/50/52/60 inches



- 
- 1 Connect the **USB IN** device to the **USB IN** jacks on the side of TV.
- 
- 2 After connecting the **USB IN** jacks, you use the **XSTUDIO** function. (▶ p.54)
-

# EXTERNAL EQUIPMENT SETUP

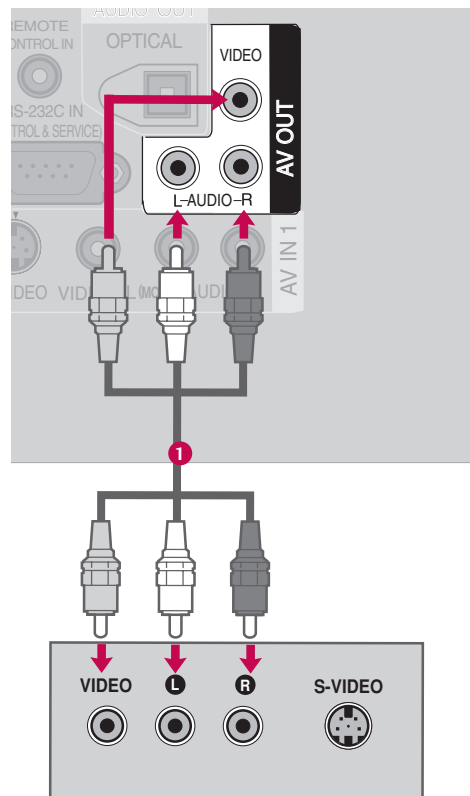
## AV OUTPUT SETUP

The TV has a special signal output capability which allows you to hook up a second TV or monitor.

- 1 Connect the second TV or monitor to the TV's **AV OUT** jacks.
- 2 See the Operating Manual of the second TV or monitor for further details regarding that device's input settings.

### NOTE

- ▶ Only Digital, Analogue mode can be used for AV out.
- ▶ We recommend to use the AV OUT jacks for VCR recording.



## DIGITAL AUDIO OUTPUT SETUP

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

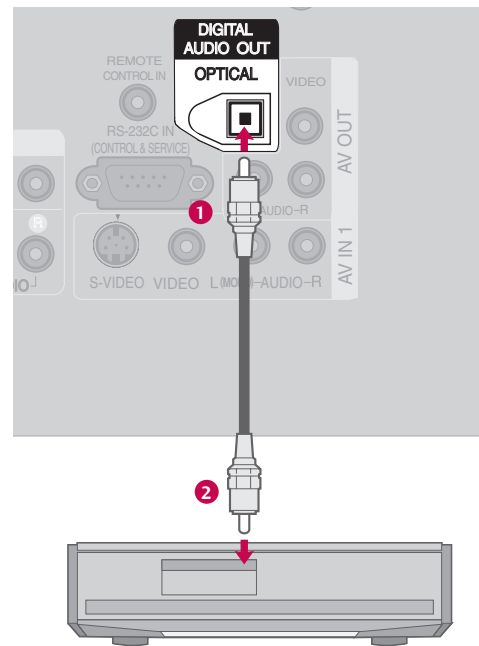
- 1 Connect one end of an optical cable to the TV Digital Audio (Optical) Output port.
- 2 Connect the other end of the optical cable to the digital audio (optical) input on the audio equipment.
- 3 Set the "TV Speaker option - Off" in the AUDIO menu. See the external audio equipment instruction manual for operation.

### NOTE

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

### CAUTION

- ▶ Do not look into the optical output port. Looking at the laser beam may damage your vision.



# WATCHING TV /PROGRAMME CONTROL

## REMOTE CONTROL KEY FUNCTIONS

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

- D/A INPUT** (Digital TV / Analogue TV) Selects digital or analogue mode.

**INPUT** External input modes rotate in regular sequence: Digital, Analogue, AV1-2, Component 1-2, RGB-PC, HDMI1, HDMI2, HDMI3.

**POWER** Switches the set between ON and STANDBY.
- SIMPLINK** See a list of AV devices connected to TV. When you toggle this button, the Simplink menu appears at the screen ▶ p.51-52

**BRIGHT** Adjusts brightness on screen. It returns to the default settings brightness by changing mode source.
- VCR/DVD control buttons** Control some video cassette recorders or DVD players ("RECORD" button is not available for DVD player).

**XSTUDIO mode control buttons** Control the **XSTUDIO** mode.
- OK** Accepts your selection or displays the current mode.
- THUMBSTICK** (Up/Down/Left Right) Adjusts menu settings. Selects menu item.
- VOLUME UP/DOWN** Increase/decrease the sound level.

**Q.VIEW** Returns to the previously viewed programme.

**MUTE** Switches the sound on or off.

**PROGRAMME UP/DOWN** Select a programme.

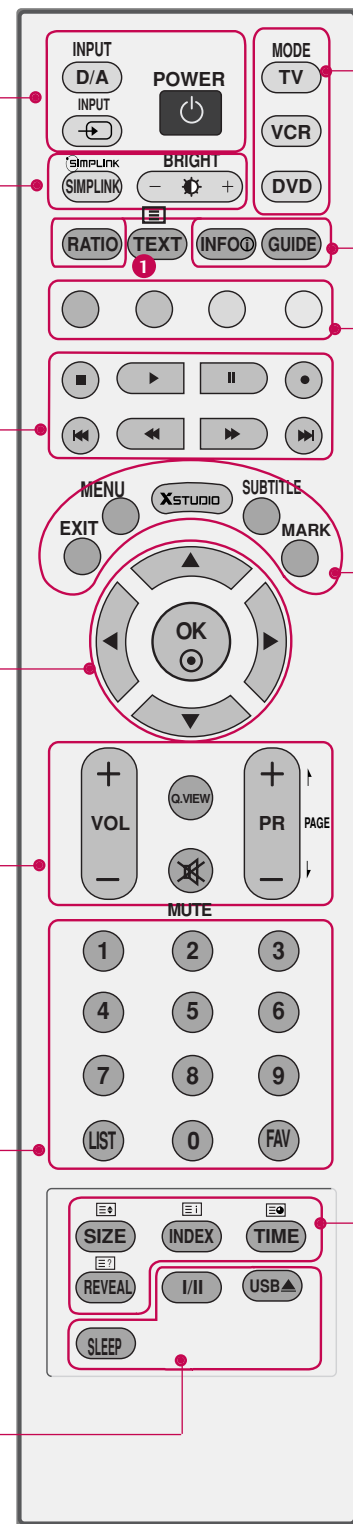
**PAGE UP/DOWN** Move from one full set of screen information to the next one.
- NUMBER button** Selects a programme. Selects numbered items in a menu.

**LIST** Displays the programme table.

**FAV(FAVORITE)** Displays the selected favorite programmes.
- I/II** Selects the sound output or the audio mode.

**USB▲** Remove the USB device.

**SLEEP** Sets the sleep timer.



**TV, VCR, DVD** Select the remote operating mode: TV, VCR, DVD. Select other operating modes, for the remote to operate external devices.

**RATIO** Selects your desired picture format.

**INFO** ⓘ Shows the present screen information.

**GUIDE** Shows a programme schedule.

**Coloured Button** They are used as per the indications or functions displayed on the TV screen in the case of Text displays (Teletext, EPG) and programme edit.

**EXIT** Returns to TV viewing from any menu.

**MENU** Selects a menu.

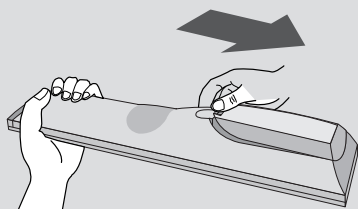
**XSTUDIO** Enter to the **XSTUDIO** mode.

**SUBTITLE** Recalls your preferred subtitle in digital mode.

**MARK** Selects the wanted functions.

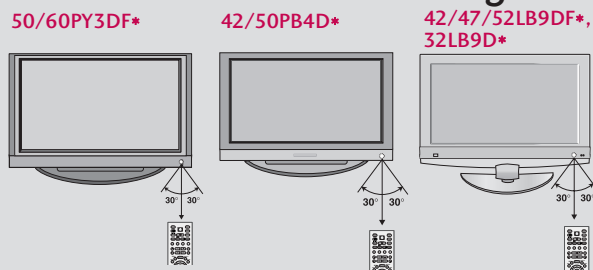
- 1 TELETEXT BUTTONS** These buttons are used for teletext. Text button is used to enable teletext services while other buttons are for teletext functions.  
\* For further details, see the 'Teletext' section.

## Installing Batteries



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

## Remote control effective range



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

# WATCHING TV/PROGRAMME CONTROL

## TURNING ON THE TV

If your TV will be turned on, you will be able to use its features.

- 1** Ensure the power cord is connected correctly.  
When connected to power the TV switches to standby mode.
  - In standby mode, press the **⏻/I**, **INPUT** (except 50/60PY3DF\*), **PR ▲** or **▼** button (except 50/60PY3DF\*) on the TV or press the **POWER, INPUT, D/A INPUT, PR +** 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 mode it was last set to, even if you turn the TV off.
- 3** When finished using the TV, press the **POWER** button on the remote control. The TV reverts to standby mode.



### NOTE

- ▶ If you intend to be away on vacation, disconnect the power plug from the wall power outlet.
- ▶ When the TV is turned on, the indicator will blink green (50/60PY3DF\*: white) before the picture is seen.

## INITIALIZING SETUP

- 1** If the OSD (On Screen Display) is displayed on the screen as figure 1 after turning on the set, you can adjust the Auto Programme tuning, Time Zone selection or Password setting.

### NOTE

- ▶ It will automatically disappear after approx, 40 seconds unless a button is pressed.

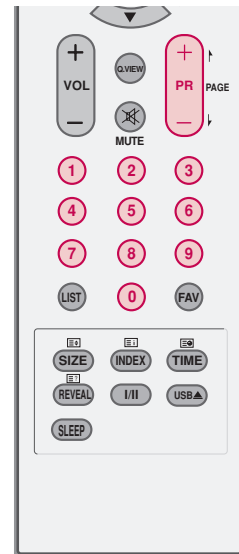


Figure 1.

## PROGRAMME SELECTION

Automatically finds all programmes available through antenna inputs, and stores them in memory on the programme list.

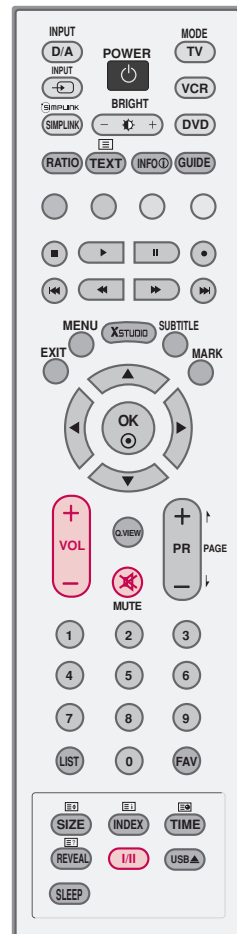
- 1 Press the **PR +** or **-** or **NUMBER** buttons to select a programme number.



## 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**, **I/II** or **VOL +** or **-** button.



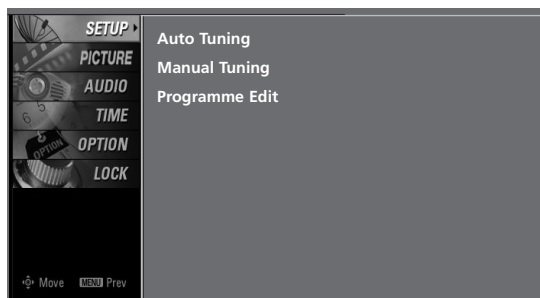
# WATCHING TV/PROGRAMME CONTROL

## ON-SCREEN MENUS SELECTION AND ADJUSTMENT

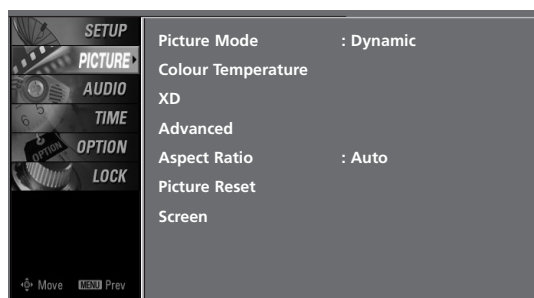
Your TV's OSD (On Screen Display) may differ slightly from what is shown in this manual.

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

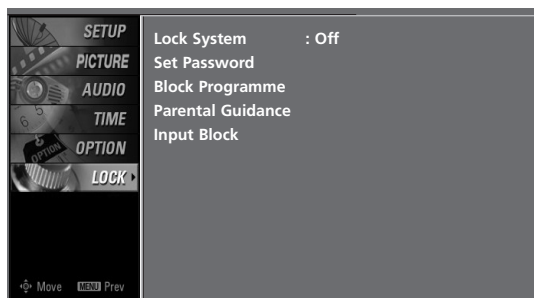
### SETUP



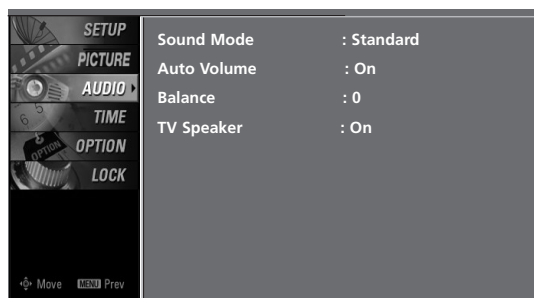
### PICTURE



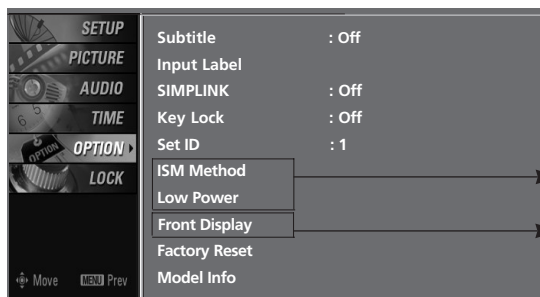
### LOCK



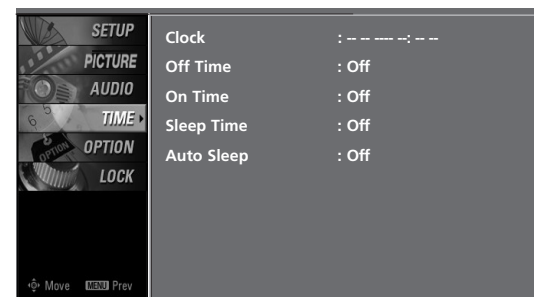
### AUDIO



### OPTION



### TIME



\*Plasma TV models only  
\*50/60PY3DF\* only



## FACTORY RESET

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

This function deletes all TV programmes.

To begin Factory Reset, input a 4-digit password in Lock system. Be sure to remember this number!

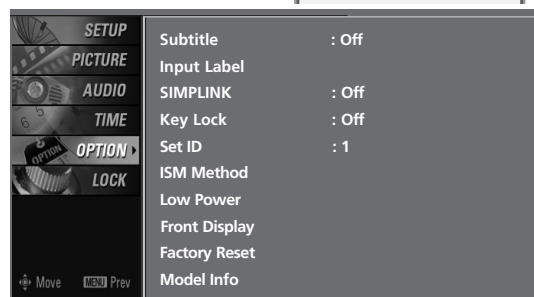
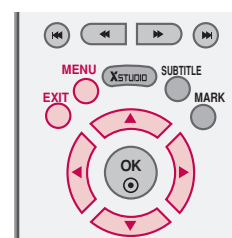
If you forgot your password, press '7', '7', '7', '7' on the remote control handset.

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

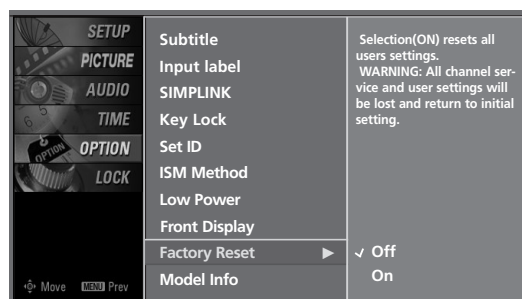
## MODEL INFO

This function enables you to watch Model, Software Version.

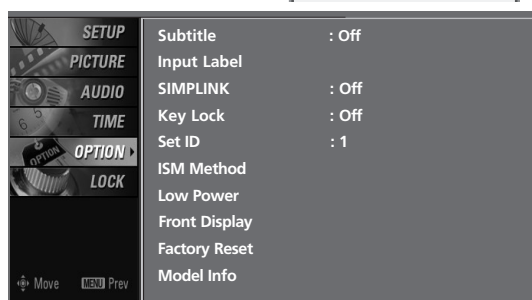
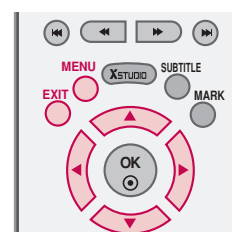
- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Model Info**.
- 3 Press the ► button to display **Model, Software Version**.
- 4 Press **EXIT** button to return to normal TV viewing or press **MENU** button to return to the previous menu.



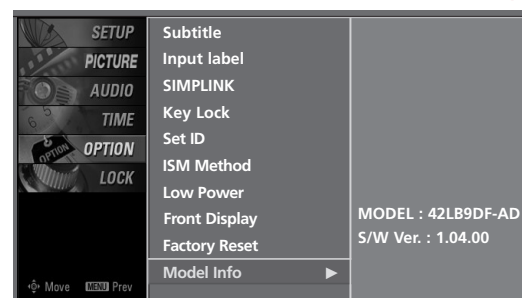
1



2 3



1



2 3

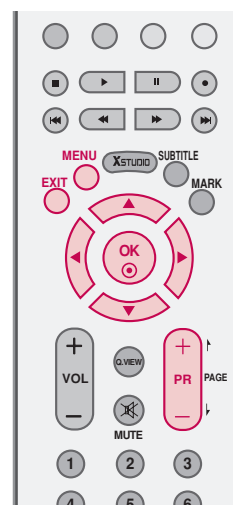
# WATCHING TV/PROGRAMME CONTROL

## AUTO PROGRAMME TUNING

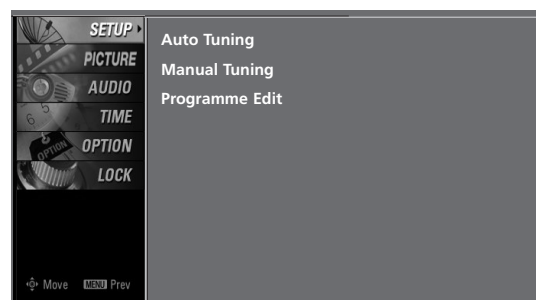
A password is required to gain access to Auto programme or Manual programme menu if the Lock system is turned on.

If you forgot your password, press '7', '7', '7', '7' on the remote control.

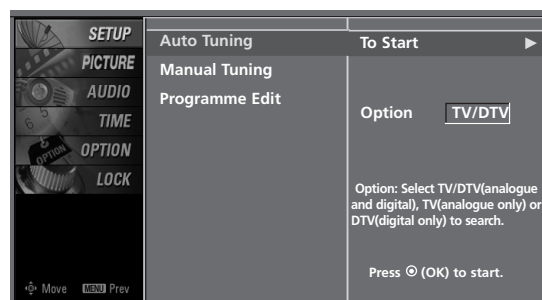
In Australia, if no station name can be assigned to a station, the programme number is assigned and stored as ----- followed by a number see 'Assigning a station name' section to assign the station name.



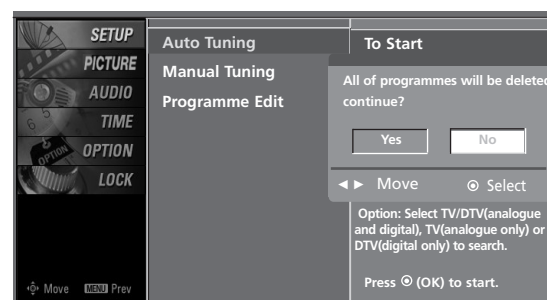
- 1 Press the **MENU** button and then **▲** or **▼** button to select the **SETUP** menu.
- 2 Press the **▶** button and then **▲** or **▼** button to select **Auto Tuning**.
- 3 Press the **▶** button to select **To Start** and then press the **◀** or **▶** button to select **No**.
- 4 Press the **OK** button.



1



2



3 4

- 5 Press the **▼** button and then **◀** or **▶** button to select **TV**(or **DTV** or **TV/DTV**) and then press the **OK** button.

- 6 Press the **◀** or **▶** button to select **Yes**.

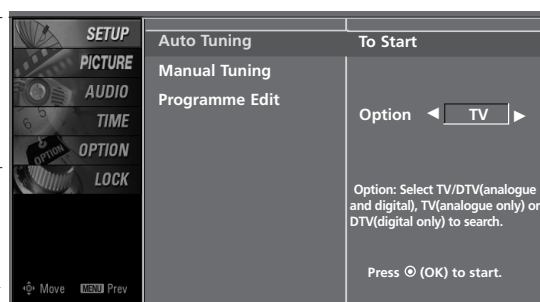
- 7 Press the **OK** button to begin auto programming. All of analogue programmes are deleted and all analogue stations are stored.

To stop auto tuning, press the **OK** button. When auto tuning is completed, the **Programme Edit** menu appears on the screen. See the 'Programme Edit' section to edit the stored programme.

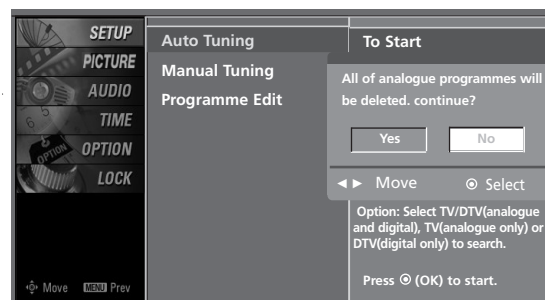
- 8 Press **EXIT** button to return to normal TV viewing or press **MENU** button to return to the previous menu.

### ! NOTE

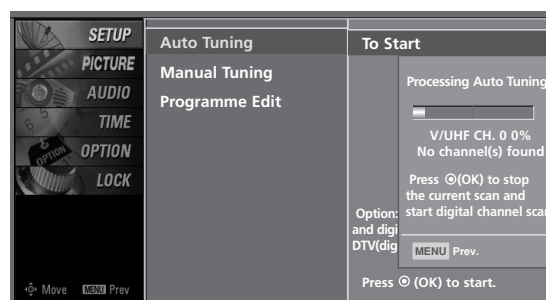
- ▶ In Auto Tuning mode, schedule list is deleted.



5



6



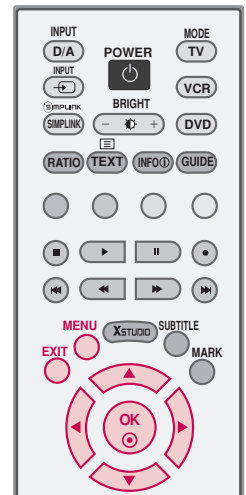
7

# WATCHING TV/PROGRAMME CONTROL

## MANUAL PROGRAMME TUNING

### In Digital Mode

Manual programme lets you manually add a programme to your programme list.



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

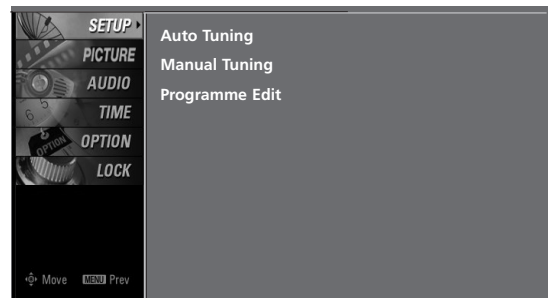
2 Press the ► button and then use ▲ or ▼ button to select **Manual Tuning**.

3 Press the ► button and then use ▲ or ▼ button to select the programme number you want to add.

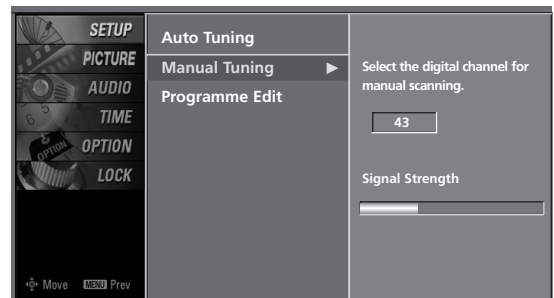
4 Press the **OK** button to store the programme. When the programme number you want to add is already added in programme list, the message “**Already programmed channel. Do you want to update?**” will appear. If you want to keep on manual tuning, select **YES** with using ◀ or ▶ button . Then, press the **OK** button. Otherwise select **NO**.

When the programme is stored, the Programme edit menu appears on the screen. See the ‘Programme Edit’ section to edit the stored programme.

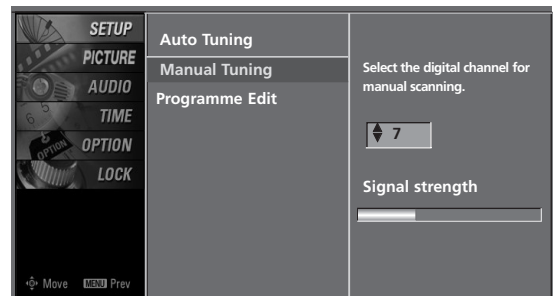
5 Press **EXIT** button to return to normal TV viewing or press **MENU** button to return to the previous menu.



1



2

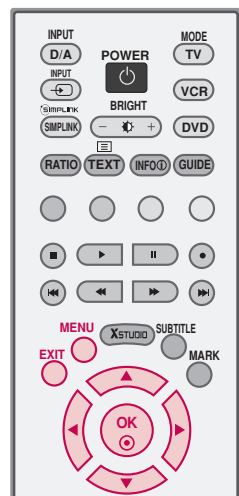


3 4 5

# MANUAL PROGRAMME TUNING Continued

## In Analogue Mode

Manual programme lets you manually tune and arrange the stations in whatever order you desire. Also you can assign a station name with five characters to each programme number.



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

---

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

---

- 3 Press the ► button to select **Band**. Press the ◀ or ▶ button to select **V/UHF** or **Cable** as required.

---

- 4 Press the ▼ button to select **Channel**. Press the ◀ or ▶ button to select the desired channel number.

---

- 5 Press the ▼ button to select **Search**. Press the ◀ or ▶ button to commence searching. If a station is found the search will stop.

---

- 6 If this station is the one required, press the ▲ or ▼ button to select **Storage**. Select the desired programme number with the ◀ or ▶ button.

---

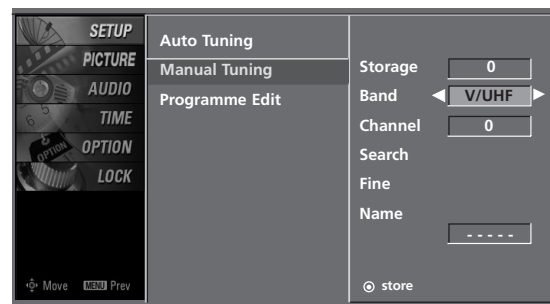
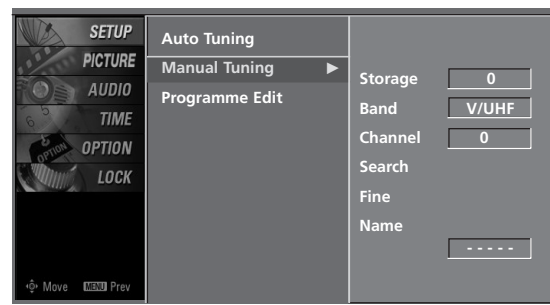
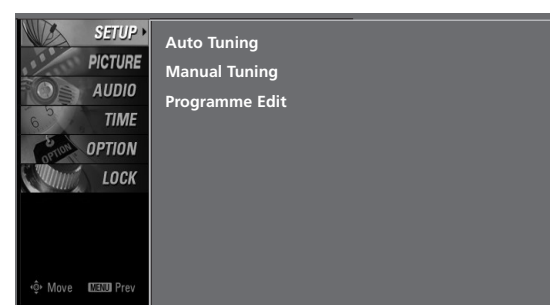
- 7 Press the **OK** button to store it.

---

- 8 To store another station, repeat steps 3 to 7.

---

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



3 4 5

# WATCHING TV/PROGRAMME CONTROL

## FINE TUNING - *In Analogue Mode only*

Normally fine tuning is only necessary if reception is poor. The finely tuned programme will be indicated by a yellow number during programme selection.



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

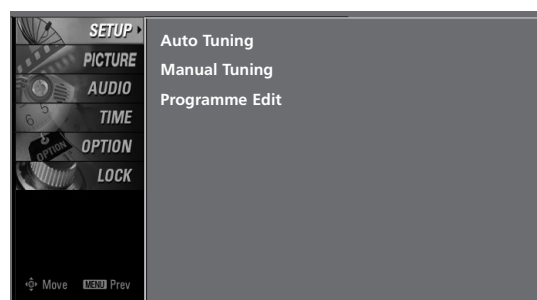
**2** Press the **▶** button and then use **▲** or **▼** button select **Manual Tuning**.

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

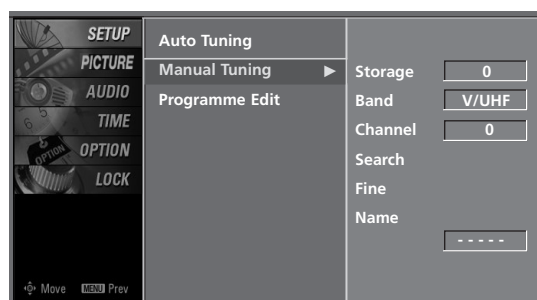
**4** Press the **◀** or **▶** button to fine tune for the best picture and sound.

**5** Press the **OK** button to store.

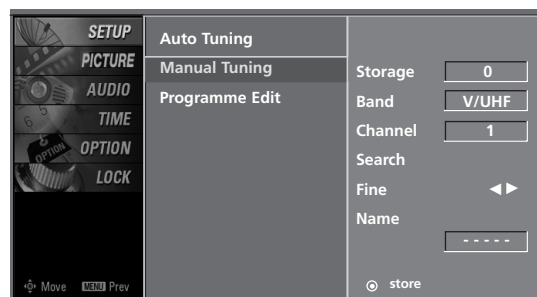
**6** Press **EXIT** button to return to normal TV viewing or press **MENU** button to return to the previous menu.



**1**



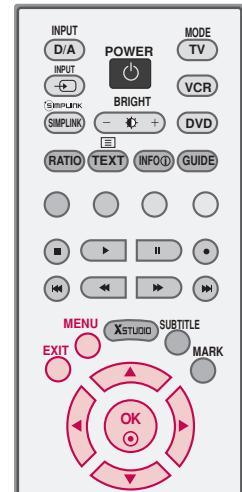
**2**



**3** **4**

## ASSIGNING A STATION NAME - *In Analogue Mode only*

You can assign a station name with the characters to each programme number.



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

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

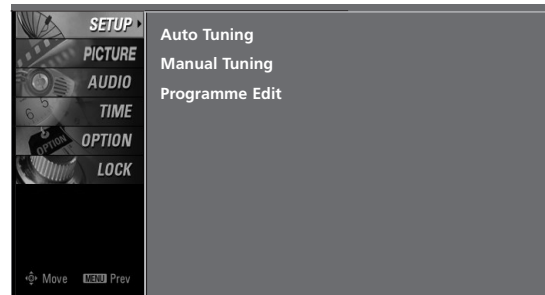
3 Press the ► button and then use ▲ or ▼ button to select **Name**.

4 Press the ◀ or ▶ button. You can use the numeric 0 to 9, the alphabet A to Z +, -, and blank.

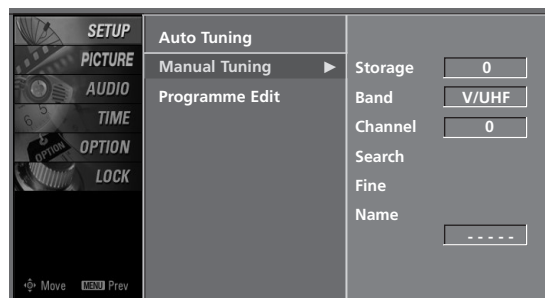
5 Press the ▲ or ▼ button to select the position and make your choice of the second character, and so on.

6 Press the **OK** button to store.

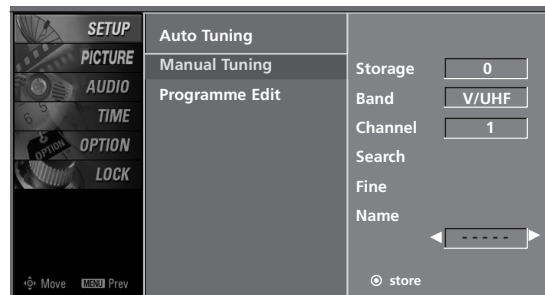
7 Press **EXIT** button to return to normal TV viewing or press **MENU** button to return to the previous menu.



1



2

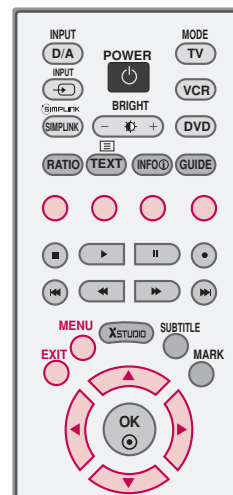


3 4

# WATCHING TV/PROGRAMME CONTROL

## PROGRAMME EDIT

This function enables you to delete or skip the stored programmes. Also you can move some stations to other programme numbers or copy blank station data into the selected programme number.



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

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

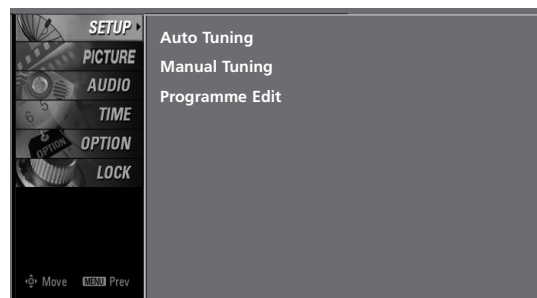
**3** Press the **▶** button.

**4** ■ **Deleting a programme (In Analogue Mode Only)**

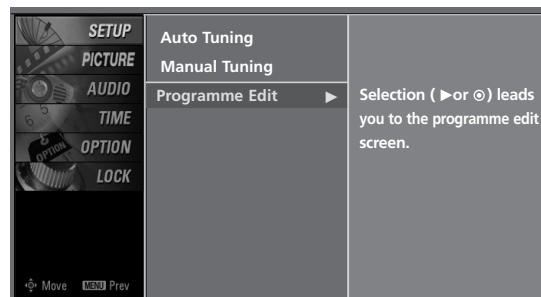
- a. Select a programme to be deleted with the **▲** or **▼** or **◀** or **▶** button.
- b. Press the **RED** button twice. The selected programme is deleted, all the following programmes are shifted up one position.

■ **Copying a programme (In Analogue Mode Only)**

- a. Select a programme to be copied with the **▲** or **▼** or **◀** or **▶** button.
- b. Press the **GREEN** button.
- c. Move the programme to the desired programme number with the **▲** or **▼** or **◀** or **▶** button.
- d. Press the **GREEN** button again to copy the programme. All the following programmes are shifted down one position.



**1**



**2**



**3 4 5**



### ■ Moving a programme (In Analogue Mode Only)

- Select a programme to be moved with ▲ or ▼ or ◀ or ▶ button.
- Press the **YELLOW** button.
- Move the programme to the desired programme number with the ▲ or ▼ or ◀ or ▶ button.
- Press the **YELLOW** button again to release this function.

### ■ Skipping a programme number

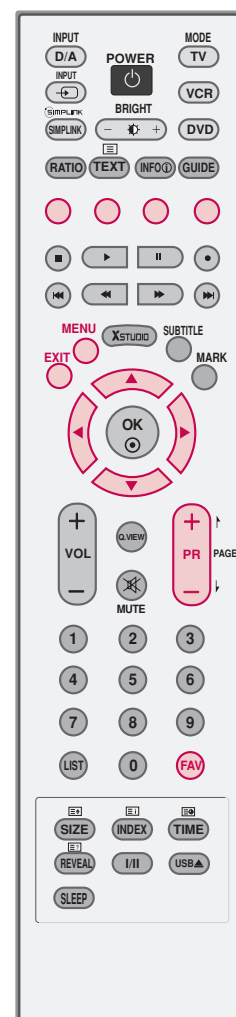
- Select a programme number to be skipped with ▲ or ▼ or ◀ or ▶ button.
- Press the **BLUE** button. The skipped programme number turns to blue.
- Press the **BLUE** button again to release the skipped programme.

When a programme number is skipped it means that you will be unable to select it using the **PR+** or **-** button during normal TV viewing. If you want to select the skipped programme, directly enter the programme number with the **NUMBER** buttons or select it in the programme edit or table menu.

### ■ Selecting Favourite Programme

- Select your favourite programme number with ▲ or ▼ or ◀ or ▶ button and then press the **FAV** button. It will automatically include the selected programme into your favourite programmes list and a heartmark will appear in front of that programme number.

- Repeatedly press the **FAV** button to select stored favourite programmes in normal TV viewing.

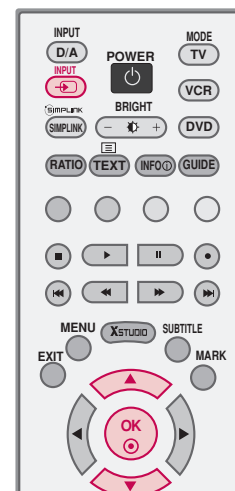
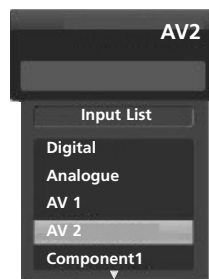


# WATCHING TV/PROGRAMME CONTROL

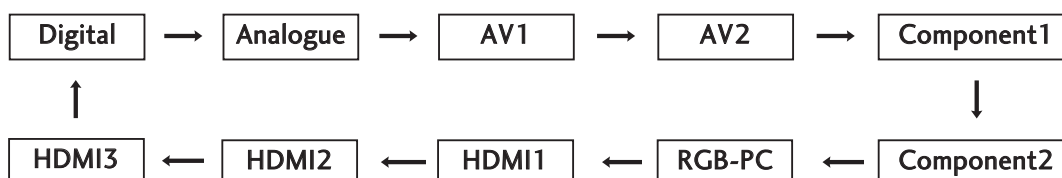
## INPUT LIST

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

Press the **OK** button to change the input to the active external device. Use the **INPUT** button to select the input source.



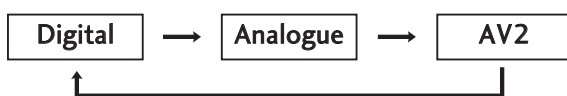
- 1** If all external input sources are connected:



- 2** If any external input sources are not connected:



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



- Digital** : Select it when watching the Digital TV.
- Analogue** : Select it when watching the Analog TV.
- AV 1, AV 2** : Select it when watching the VCR or external equipment.
- Component 1-2** : Select it when using the DVD or the Digital set-top box depend on connector.
- RGB-PC** : Select it when using PC depend on connector.
- HDMI, HDMI2, HDMI3** : Select it when using DVD, PC or Digital set-top box depend on connector.

## CALLING UP THE CHANNEL LIST

You can check the programmes stored in the memory by displaying the channel list.

### Displaying Channel list

- Press the **LIST** button to display the Channel List menu.  
The Channel list appears on the screen.

#### ! NOTE

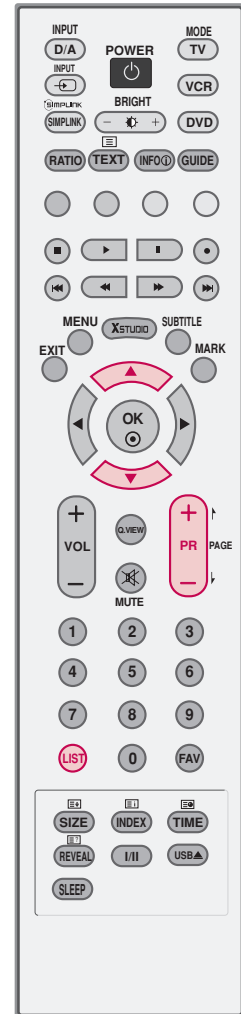
- ▶ You may find some gray programmes. They have been set up to be skipped by auto tuning or in the programme edit mode.
- ▶ Some programmes with the channel number shown in the channel LIST indicate there is no station name assigned.

### Selecting a programme in the channel list

- 1 Select a programme with the ▲ or ▼ buttons.
- 2 The set switches to the chosen programme number.

### Paging through a channel list

- 1 Press the ▲ or ▼ button to changes current channel into previous or next channel.

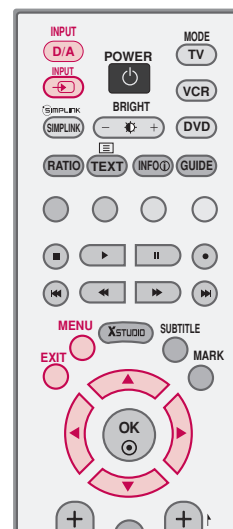


# WATCHING TV/PROGRAMME CONTROL

## INPUT SOURCE SELECTION

Alternatively you can select the Digital, Analogue, AV1-2, Component 1-2, RGB-PC, HDMI1/2/3 mode by pressing the **INPUT** button.

Press the **D/A INPUT** button to select digital or analogue mode.



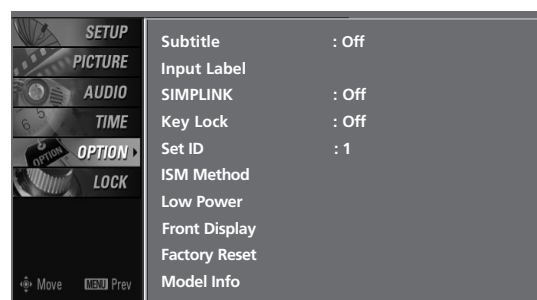
**1** Press the **MENU** button and then use **▲** or **▼** button to select the **OPTION** menu.

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

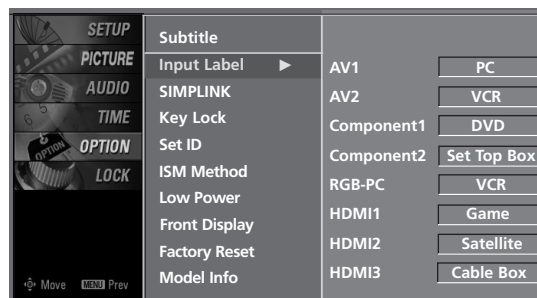
**3** Press the **▶** button and then use **▲** or **▼** to select AV 1 , AV 2 , Component 1, Component 2, RGB-PC, HDMI1/2/3.

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

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



**1**



**2 3**

### ! NOTE

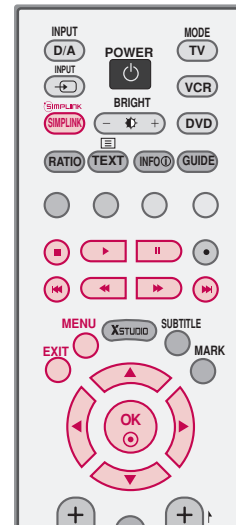
- ▶ If you select PC label in HDMI1/2/3 mode, the picture size will be adjusted to PC mode size.



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

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

If you do not want SIMPLINK menu, select "Off".

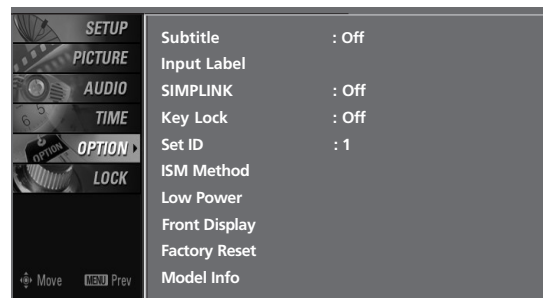


1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

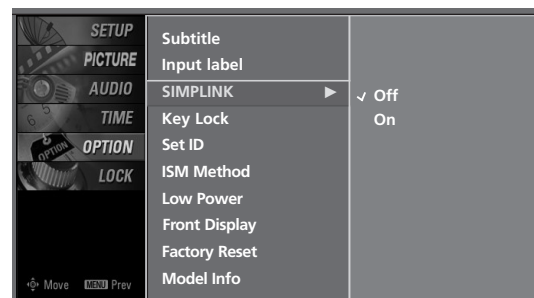
2 Press the ► button and then use ▲ or ▼ button to select **SIMPLINK**.

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

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



2



3 4 5

# WATCHING TV/PROGRAMME CONTROL

## SIMPLINK Functions

### Disc playback

Control connected AV devices by pressing the ▲ or ▼ or ◀ or ▶, OK buttons and buttons for play, stop, pause, fast reverse, fast forward, chapter skip. (The ⏻ button does not provide such functions)

### Direct Play

After connecting AV devices to TV, you can directly control the devices and play media without additional settings.

### Select AV device

Enables you to select one of AV devices connected to TV and play it.

### Power off all devices

When you power off TV, all connected devices are turned off.

### Switch audio-out

Offers an easy way to switch audio-out.

\* A device, which is connected to TV through HDMI cable but does not support Simplink, does not provide this function.

## SIMPLINK Menu

Press the ▲ or ▼ or ◀ or ▶ button and then OK button to select the desired SIMPLINK source.

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



### NOTE

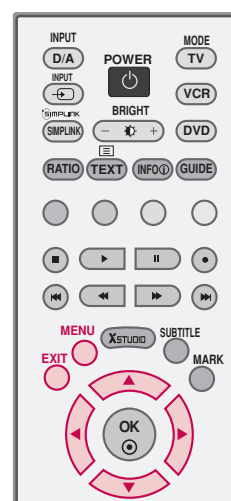
- ▶ Connect the HDMI/DVI IN or HDMI IN terminal of the TV to the rear terminal (HDMI terminal) of the SIMPLINK device with the HDMI cable.
- ▶ After connecting the HDMI terminal for the home theater with SIMPLINK function in the above method, connect the VARIABLE AUDIO OUT terminal on the back of the TV to the VARIABLE AUDIO IN terminal on the back of the SIMPLINK device with the VARIABLE AUDIO OUT cable.
- ▶ When operating the external device with SIMPLINK, press the TV button among the MODE button on the remote controller.
- ▶ When you switch the Input source with the INPUT button on the remote controller, you can stop the operation of device controlled by SIMPLINK.
- ▶ When you select or operate the media device with home theater function, the speaker automatically switches to home theater speaker (HT speaker).
- ▶ When you execute 'Photo List, Music List' function during DVD playback included in home theater supported the SIMPLINK stops and the applicable function is executed after switching the input to TV.

## KEY LOCK

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

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

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

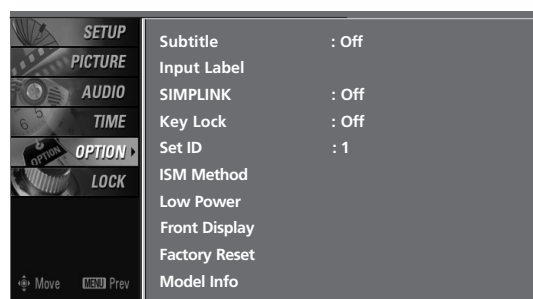


1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

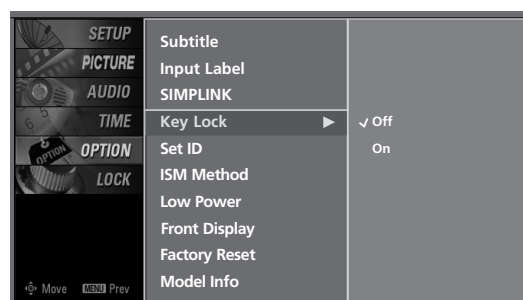
2 Press the ► button and then use ▲ or ▼ button to select **Key Lock**

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

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



1




2 3

### ! NOTE

- ▶ With the lock on, the display '**Key Lock**' appears on the screen if any button on the front panel is pressed while viewing the TV.
- ▶ The display '**Key Lock**' will not appear on the screen if any button on the front panel is pressed while displaying the menus.

## ENTRY MODES

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

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

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

[X-STUDIO Menu]



1 2



3

### ! NOTE

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



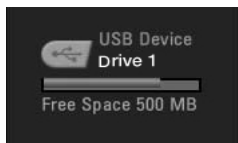
# PHOTO LIST

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

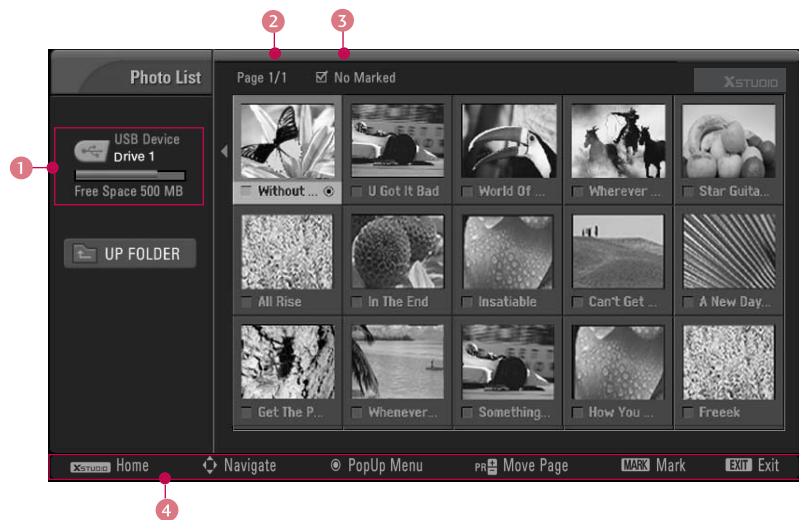
The On Screen Display may be different from your set. Images are an example to assist with the TV operation.

## Screen Components

- 1 Usable USB memory



- 2 Current page/Total pages
- 3 Total number of marked thumbnail photos
- 4 Corresponding buttons on the remote control



## Photo Selection and PopUp Menu

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

- 1 Use the **PR +** or **-** button to navigate in the thumbnail photo page.

---

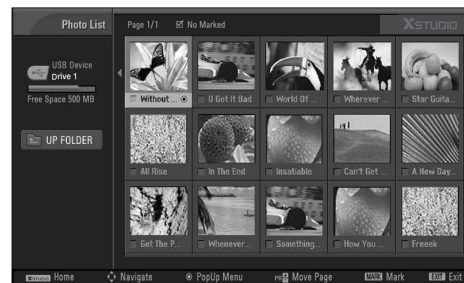
- 2 Use the **MARK** button to mark or unmark a photo. When one or more photos are marked, you can view individual photos or a slide show of the marked photos. If no photos are marked, you can view all photos individually or all photos in the folder in a slide show.

---

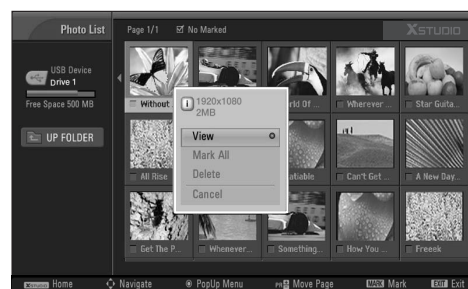
- 3 Use **▲** or **▼** or **◀** or **▶** button to navigate the appropriate thumbnail photos, then press the **OK** button to show the PopUp menu.

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

- 4 Repeatedly, press **EXIT** button to return to TV viewing or press the **XSTUDIO** button to return to the X-STUDIO menu.



1 2



3

## Set up the menu in Full-Sized Screen

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

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

- 1 Use the **PR +** or **-** button to navigate the thumbnail photo page.
- 2 Use **▲** or **▼** or **◀** or **▶** button to navigate the appropriate thumbnail photos, then press the **OK** button to show the PopUp menu.
- 3 Use **▲** or **▼** button to Move to the **View** menu, then press the **OK** button.
- 4 The selected photo is displayed in full size.

▶ **Slide Show** : When no picture is selected, all photos in the current folder are displayed during slide show. When selected, the selected photos are displayed during slide show. To start slide show, press **OK** button on **Slideshow** .

- Set the time interval of the slide show in **Option**.
- A slide show continues for a maximum of 4 hours. After 4 hours, the slide show will end and go to TV mode or external input mode.

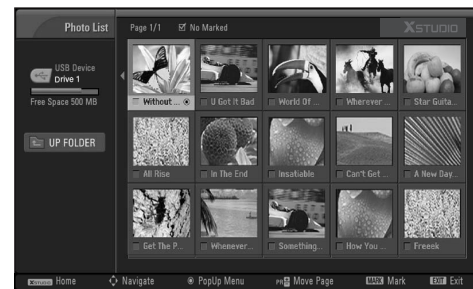
▶ **BGM** : Listen to music while viewing photos in full size. To start BGM, press **OK** button on **BGM** .

- Set the BGM device and album in **Option** .

▶ **⌛ (Rotate)** : Rotate photos.

- Rotates the photo 90°, 180°, 270°, 360° clockwise upon **OK** button on **⌛ (Rotate)**.

▶ **Delete** : Delete photos. Use **◀** or **▶** button to select **Delete** and press **OK** button.

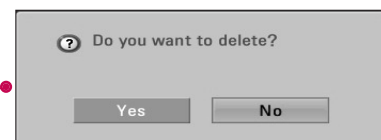


1 2 3

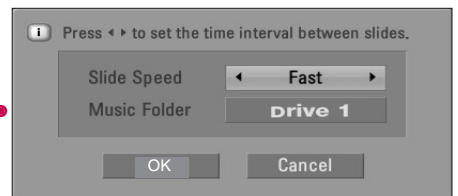


The aspect ratio of a photo may change the size of the photo displayed on the screen in full size.

4




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



- 5 Use ▲ or ▼ or ◀ or ▶ button to select the previous or next photo.  
Use ▲ or ▼ or ◀ or ▶ button to select and control the menu on the full-sized screen.

- 6 Use **EXIT** button to go back to the photo list from the full sized screen.

- 7 Repeatedly, press **EXIT** button to return to TV viewing or press  button to return to the X-STUDIO menu.

## ! NOTE

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

## MUSIC LIST

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

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

## Screen Components

- 1 Usable USB memory
- 2 Current page/Total pages
- 3 Total number of marked music
- 4 Current playing time/Total playing time
- 5 Corresponding buttons on the remote control

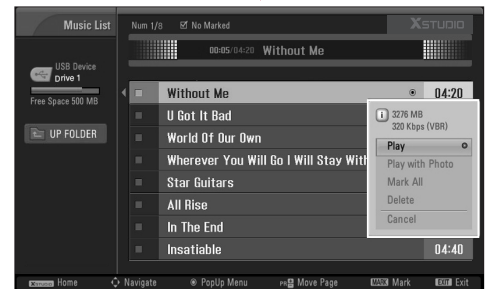
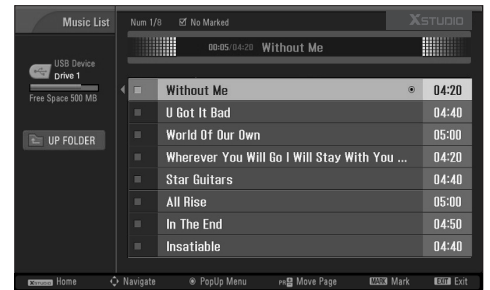
Track Name	Duration
Without Me	04:20
U Got It Bad	04:40
World Of Our Own	05:00
Wherever You Will Go I Will Stay With You ...	04:20
Star Guitars	04:40
All Rise	05:00
In The End	04:50
Insatiable	04:40

## Music Selection and PopUp Menu


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

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

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










- 1
- 2
- 3

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



### ! NOTE

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

# EPG(ELECTRONIC PROGRAMME GUIDE)

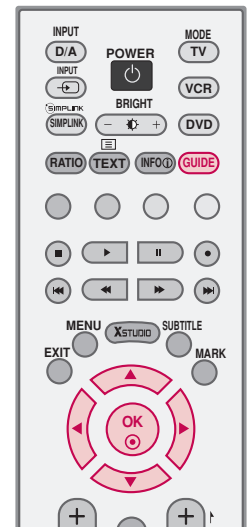
## - In Digital Mode Only

This system has an Electronic Programme Guide (EPG) to help your navigation through all the possible viewing options.

The EPG supplies information such as programme listings, start and end times for all available services. In addition, detailed information about the programme is often available in the EPG (the availability and amount of these programme details will vary, depending on the particular broadcaster).

This function can be used only when the EPG information is broadcasted by broadcasting companies.

The EPG displays the programme description for next 7 days.



## Switch on/off EPG

- 1 Press the **GUIDE** button to switch on EPG.
- 2 Press the **GUIDE** or **EXIT** button again to switch off EPG and return to TV viewing.

## Select a programme

- 1 Press the **▲** or **▼** or **◀** or **▶** buttons to select desired programme, then press the **OK** button to display the selected programme.



## Button Function in NOW/NEXT Guide Mode



Remote Control Buttons	Function
GREEN	Change to 7Day's EPG Guide
YELLOW	Shows the Schedule list
BLUE	Selects the Radio programmes
▲/▼/◀/▶	Select the Broadcasting Programme
EXIT	Switch off EPG
INFO ⓘ	The detail information on or off

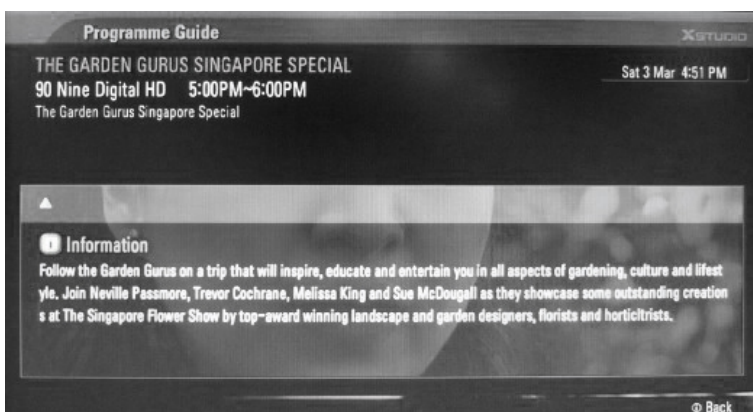
## Button Function in 7 Days Guide Mode



Remote Control Buttons	Function
GREEN	Change to Now/Next Guide
RED	Enter Timer Reservation/Cancel setting mode
YELLOW	Shows the Schedule List
BLUE	Selects the Radio programmes
▲/▼/◀/▶	Select the Broadcasting Programme
EXIT	Switch off EPG
◀◀ ▶▶	Selects the page
◀◀ ▶▶	Selects the day
INFO ⓘ	The detail information on or off

# EPG(ELECTRONIC PROGRAMME GUIDE)

## Button Function in Extended Description Box



Remote Control Buttons	Function
	Change to the selected programme
INFO	The detail information on or off

## Button Function in Reservation Setting Mode



Remote Control Buttons	Function
YELLOW	Change to Guide
PR +/-	Page Up/Down
	Delete the selected item

# PICTURE CONTROL

## PICTURE SIZE(ASPECT RATIO)CONTROL

You can watch TV in various picture formats; Auto, 4:3, 16:9 (Wide), 14:9, Zoom and 1:1 Pixel.

### ! NOTE

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



- 1 Press the **RATIO** button repeatedly to select the desired picture format.

- You can also adjust **Aspect Ratio** in the **PICTURE** menu.

### Auto

Selects the proper picture proportion to match the source's image. (4:3 → 4:3, 16:9 → 16:9)

### 4:3

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

### 16:9

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

### 14:9

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

You can move the 14:9 screen using ▲ or ▼ button. The adjustment range is -10 - +10.

### Zoom

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

You can move the Zoom screen using ▲ or ▼ button. The adjustment range is -16 - +16.

### 1:1 Pixel

Choose 1:1 Pixel when you want to view the picture of best quality without loss of original picture in high resolution image.

(42/47/52LB9DF\*, 50/60PY3DF\* only)

### ! NOTE

- ▶ In HDMI/DVI-PC and RGB-PC mode, 4:3 and 16:9 is available.
- ▶ Auto: When your TV receives the wide screen signal, it will be automatically changed to the picture format sent. (Not available in all countries)
- ▶ In HDMI/DVI(1080i or 1080p) mode, 1:1 Pixel is available.

# PICTURE CONTROL

## PRESET PICTURE SETTINGS

### Picture Mode -Preset

**Intelligent Eye** Adjusts picture according to the surrounding conditions.(LCD TV models only)

**Dynamic** Select this option to display with a sharp image.

**Standard** The most general and natural screen display status.

**Mild** Select this option to display with a mild image.

**User 1/2** Select this option to use the user-defined setting.



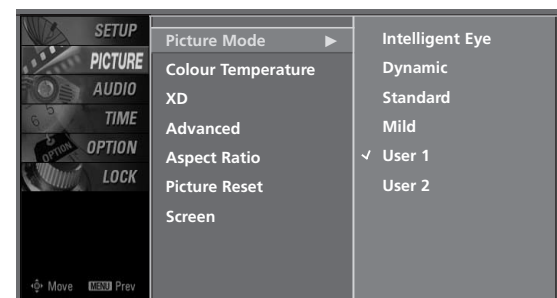
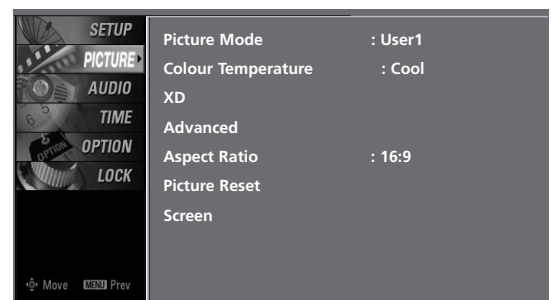
**1** Press the **MENU** button and then use **▲** or **▼** button to select the **PICTURE** menu.

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

**3** Press the **▶** button and then use **▲** or **▼** button to select **Intelligent Eye**(LCD TV models only), **Dynamic**, **Standard**, **Mild**, **User1**, or **User2**.

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

- Picture Mode adjusts the TV for the best picture appearance. Select the preset value in the **Picture Mode** menu based on the programme category.
- Intelligent Eye (LCD TV models only), Dynamic, Standard and Mild are programmed for optimum picture reproduction at the factory and cannot be changed.
- When the Intelligent eye function is on, the most suitable picture is automatically adjusted according to the surrounding conditions. (LCD TV models only)



**2 3**

### ! NOTE

- ▶ In RGB-PC, HDMI-PC mode, to get the best picture quality, adjust the picture mode to Standard.

## Auto Colour Tone Control (Warm/Medium/Cool)

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

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

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

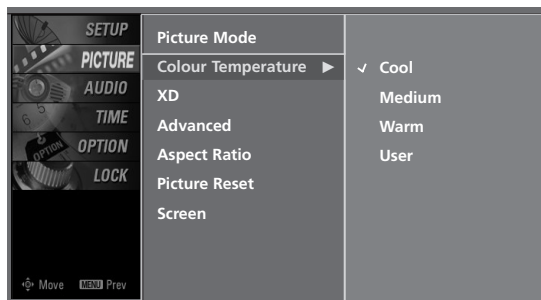
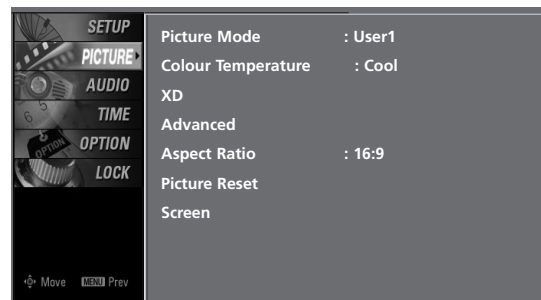


**1** Press the **MENU** button and then use **▲** or **▼** button to select the **PICTURE** menu.

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

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

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



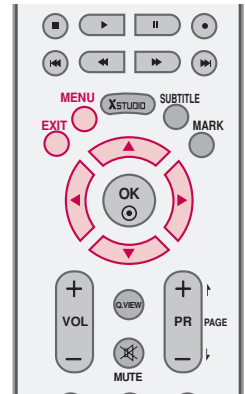
**3**

# PICTURE CONTROL

## MANUAL PICTURE ADJUSTMENT

### Picture Mode -User Option

You can adjust picture Contrast, Brightness, Colour, Sharpness, Tint and Back Light options to the levels you prefer.



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

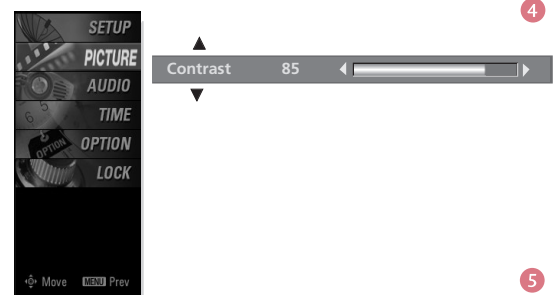
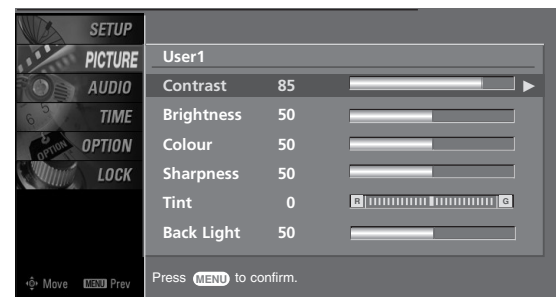
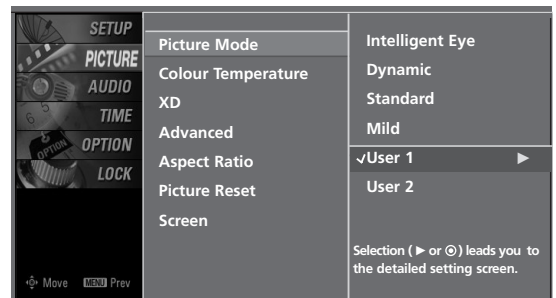
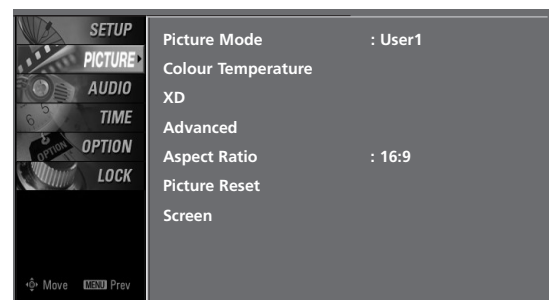
**2** Press the **▶** button and then use **▲** or **▼** button to select **Picture Mode**.

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

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

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

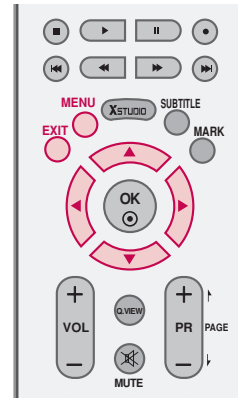
**6** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



## Colour Tone -User Option

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

This feature operates only if the picture mode is set to **User 1** or **User 2**.



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

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

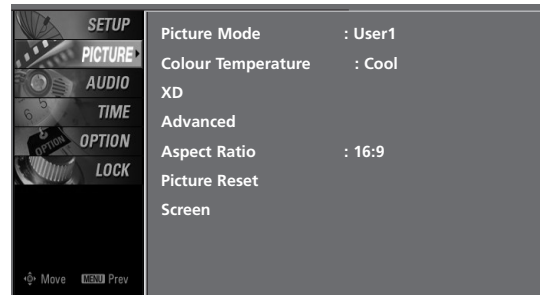
**3** Press the **▶** button and then use **▲** or **▼** button to select **User**.

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

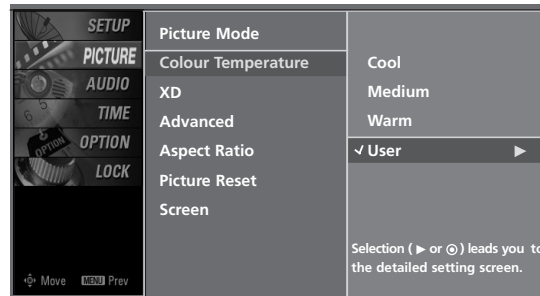
**5** Press the **▶** button and then use **◀** or **▶** button to make appropriate adjustments.

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

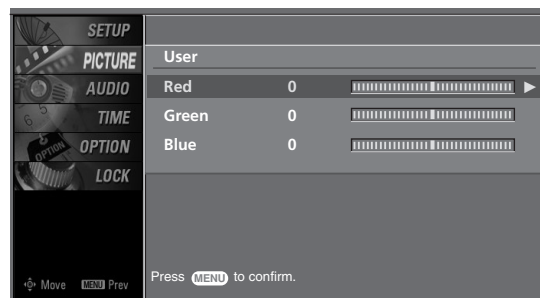
**6** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



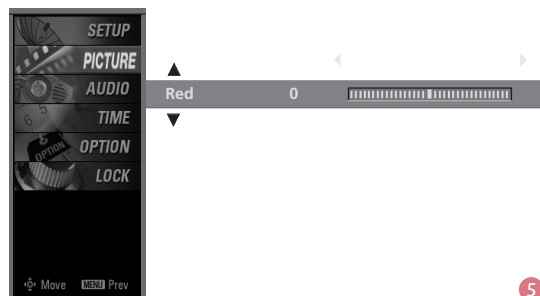
**1**



**2 3**



**4**




**5**

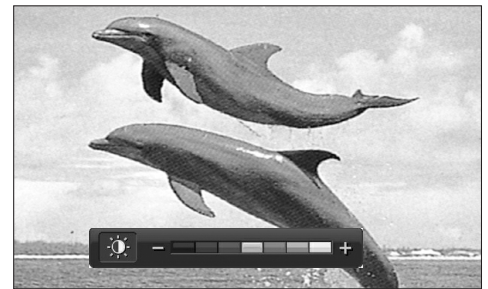
# PICTURE CONTROL

## BRIGHTNESS ADJUSTMENT

Adjust the brightness using this button on the remote control.  
In Intelligent Eye mode, Brightness adjustment is not available.



- 1 Press the  button.
- 2 Adjust the desired screen brightness.



1 2



## XD - PICTURE IMPROVEMENT TECHNOLOGY

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

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

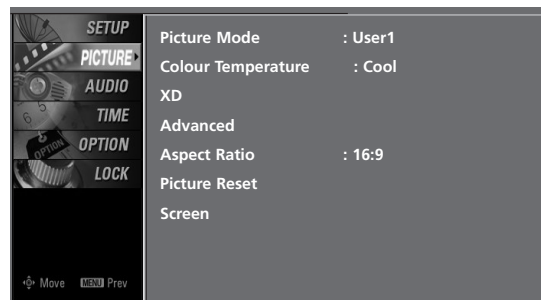
When selecting Picture Mode options (User 1 and User 2), you can choose the Auto / Manual and when selecting Manual, you can adjust the XD Contrast, XD colour and XD Noise.



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

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

- 3 Press the ► button and then use ◀ or ▶ button to select **Auto** or **Manual**.



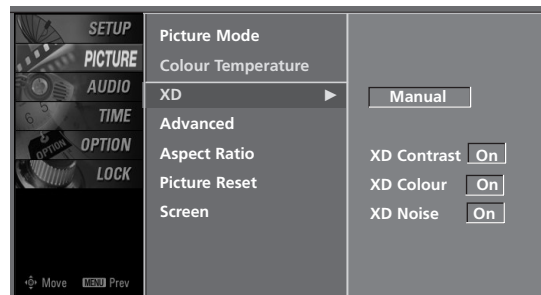
1

### \* Selecting the Manual

1. Press the ▼ button and then use ▲ or ▼ button to select **XD Contrast**, **XD Colour** or **XD Noise**.

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

2. Use the ◀ or ▶ button to select **On** or **Off**.



2 3 4

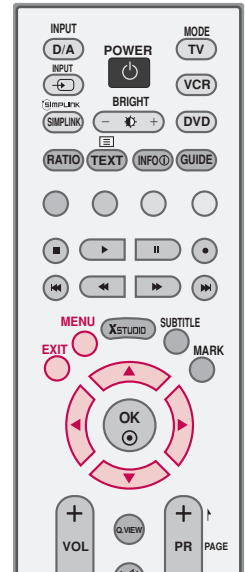
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

# PICTURE CONTROL

## ADVANCED -CINEMA

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

When you operate Cinema, the TV will adjust 24 fps video from movies to 30 fps video for display (This function is only available in TV(Analog, DTV), AV1, AV2, Component 480i, 576i mode.)



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

---

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

---

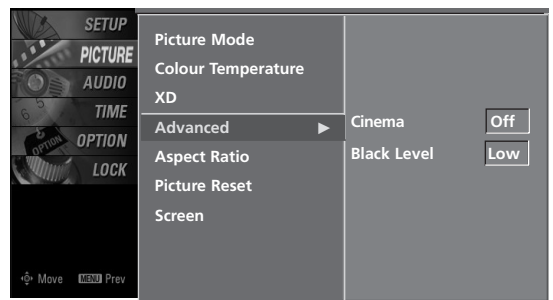
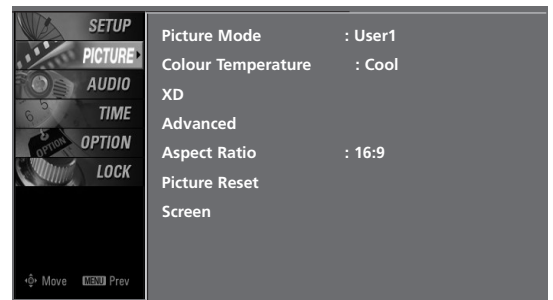
- 3 Press the ► button and then use ▲ or ▼ button to select **Cinema**.

---

- 4 Press the ► button and then use ◀ or ▶ button to select **On** or **Off**.

---

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

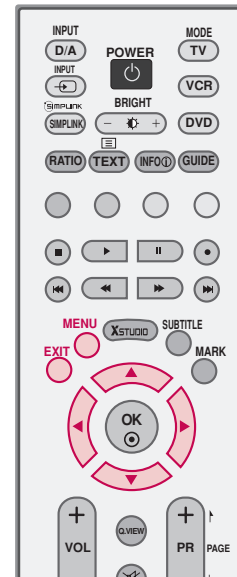


- 3
- 4

## ADVANCED-BLACK(DARKNESS) LEVEL

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

This feature operates only in HDMI1, HDMI2, HDMI3 or AV1, AV2 mode.



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

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

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

4 Press the ► button and then use ◀ or ▶ button to select **Low**, or **High**.

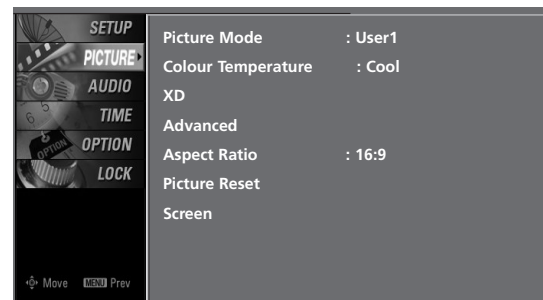
■ **Low**

The reflection of the screen gets darker.

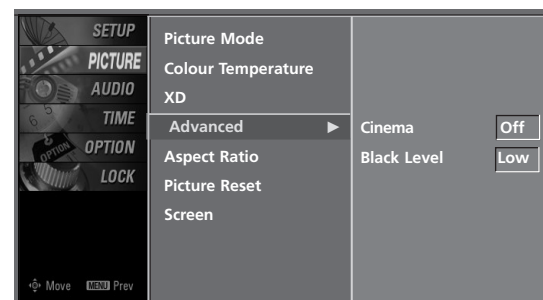
■ **High**

The reflection of the screen gets brighter.

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



1



2 3 4

# PICTURE CONTROL

## PICTURE RESET

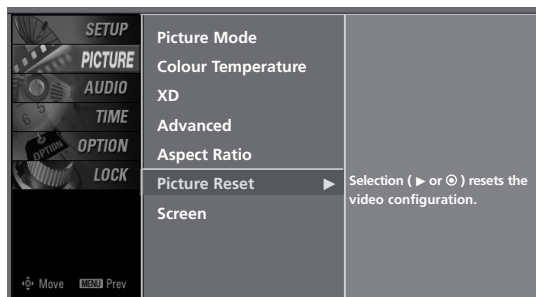
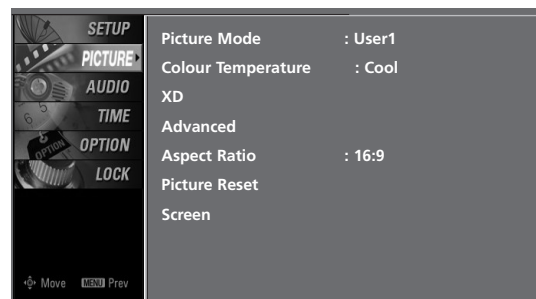
Use to quickly reset all the Picture menu options to their original factory preset values.



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

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

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



3

## IMAGE STICKING MINIMIZATION (ISM) METHOD (Only Plasma TV model)

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

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

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

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

### ■ Normal

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

### ■ Orbiter

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

### ■ Inversion

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

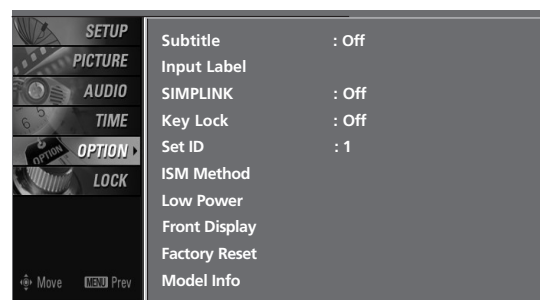
### ■ White wash

White Wash removes permanent images from the screen.

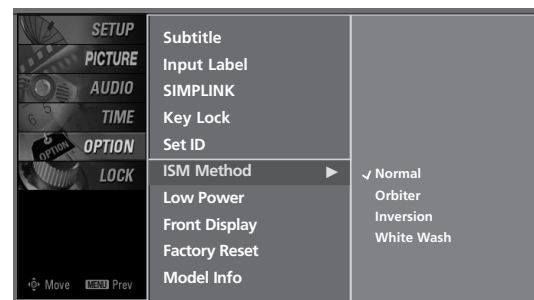
### ! NOTE

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

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



**1**



**2 3**

# PICTURE CONTROL

## LOW POWER (Only Plasma TV model)

Low power reduces the plasma display power consumption.



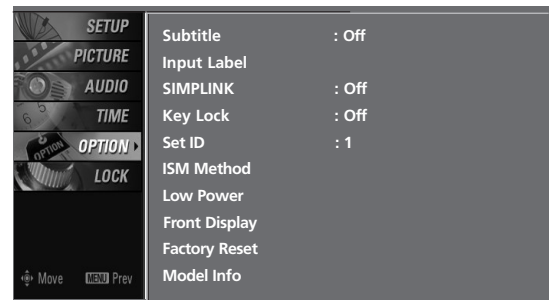
**1** Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

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

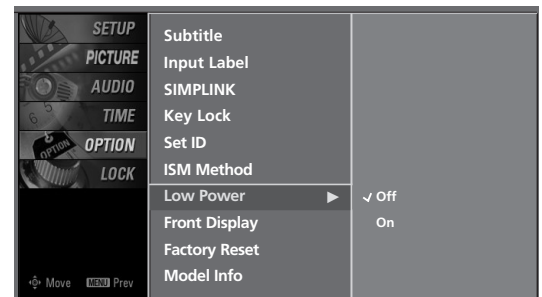
**3** Press the ► button and then use ▲ or ▼ button to select **On** or **Off**.

- When you select **On**, the screen darkens.

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



**1**



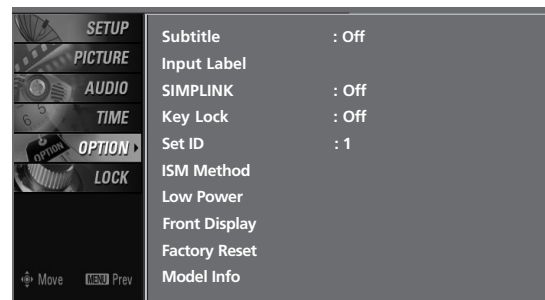
**2 3**

## FRONT DISPLAY (50/60PY3DF\* only)

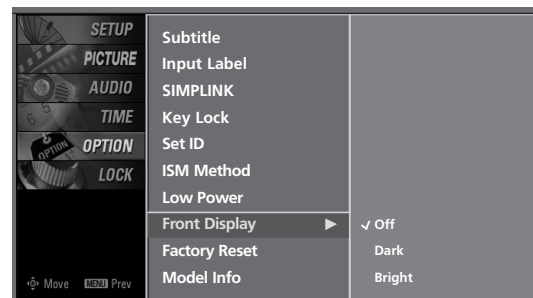
Illuminates brightly when the set is turned on.  
The LED displays current TV status.



- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Front Display**.
- 3 Press the ► button and then use ▲ or ▼ button to select **Off, Dark or Bright**.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2 3

# SOUND & LANGUAGE CONTROL

## AUTO VOLUME LEVELER(AUTO VOLUME )

AVL automatically keeps on an equal volume level even if you change programmes.

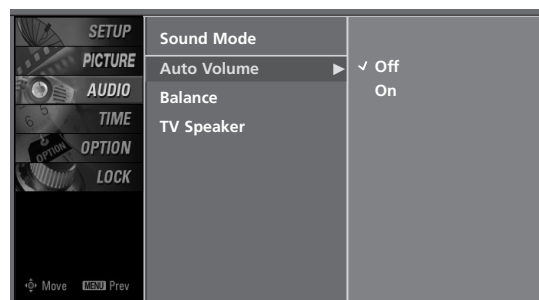
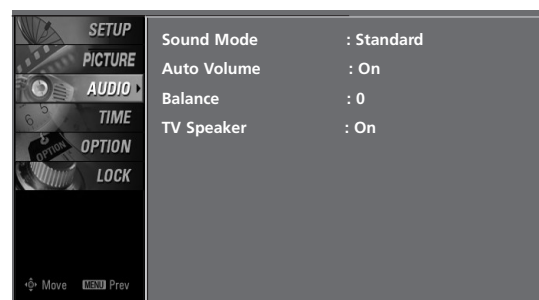


1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

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

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

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



3



## PRESET SOUND SETTINGS -SOUND MODE

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

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

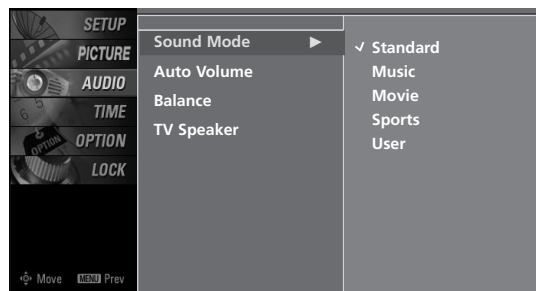
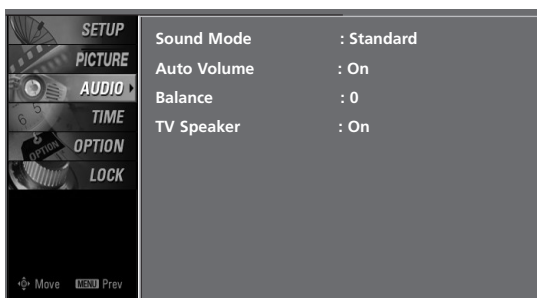


**1** Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

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

**3** Press the ► button and then use ▲ or ▼ button to select **Standard, Music, Movie, Sports, or User**.

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



# SOUND & LANGUAGE CONTROL

## SOUND SETTING ADJUSTMENT-USER MODE

Adjust the sound to suit your taste and room situations.

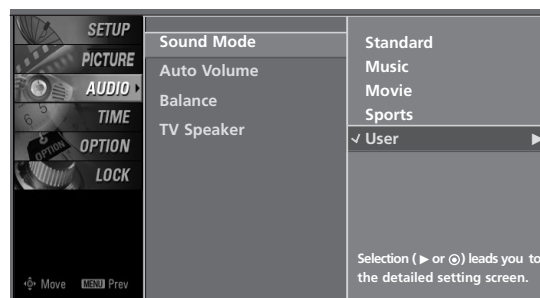


1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

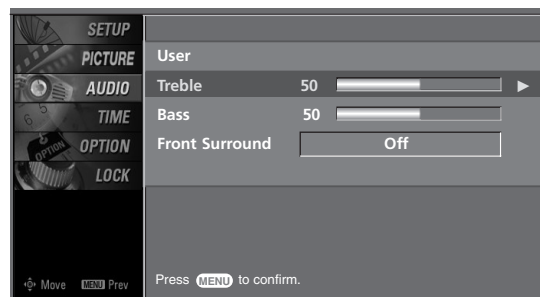
2 Press the ► button and then use ▲ or ▼ button to select **Sound Mode**.

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

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



1 2 3

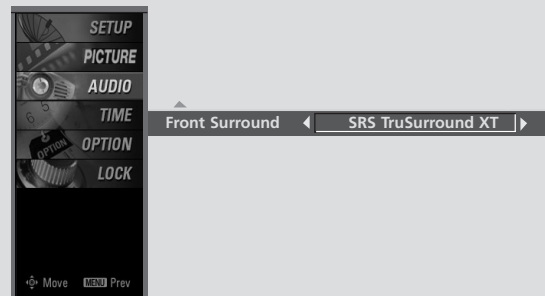


4

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

\* **Selecting the Front Surround**


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



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

**SRS TruSurround XT**

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

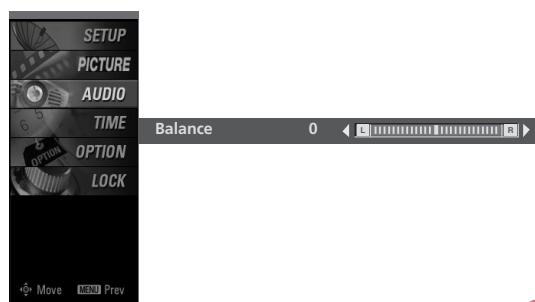
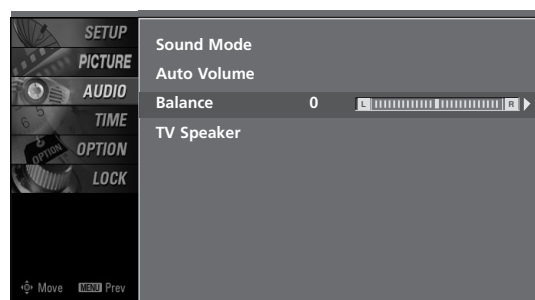
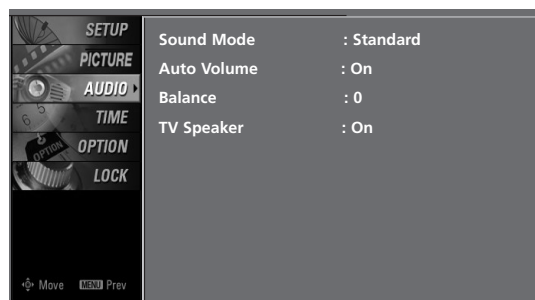
- ▶  is a trademark of SRS Labs, Inc.
- ▶ TruSurround XT technology is incorporated under license from SRS Labs, Inc.

# SOUND & LANGUAGE CONTROL

## BALANCE

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

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Balance**.
- 3 Press the ► button and then use ◀ or ▶ button to make appropriate adjustments.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



# TV SPEAKERS ON/OFF SETUP

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

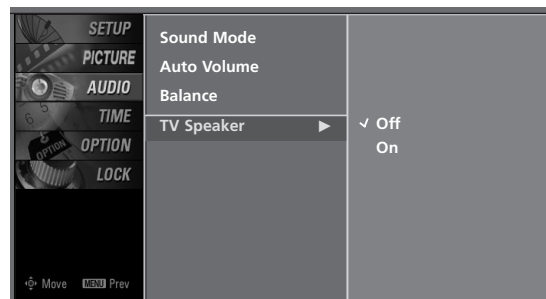
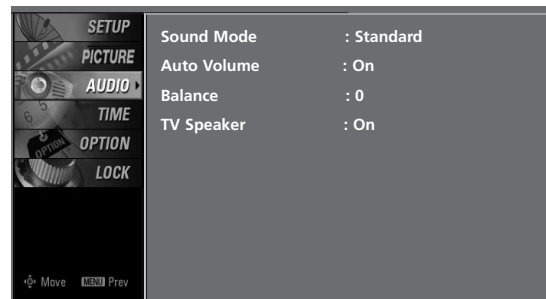


**1** Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

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

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

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



**3**

# SOUND & LANGUAGE CONTROL

## I/II

### STEREO/DUAL RECEPTION - *In Analogue Mode only*

#### ■ Mono sound selection

If the stereo signal is weak in stereo reception, you can switch to mono by pressing the **I/II** button twice. In mono reception, the clarity of sound is improved. To switch back to stereo, press the **I/II** button twice again.

Broadcast	On Screen Display
Mono	MONO
Stereo	MONO / STEREO

### SPEAKER SOUND OUTPUT SELECTION

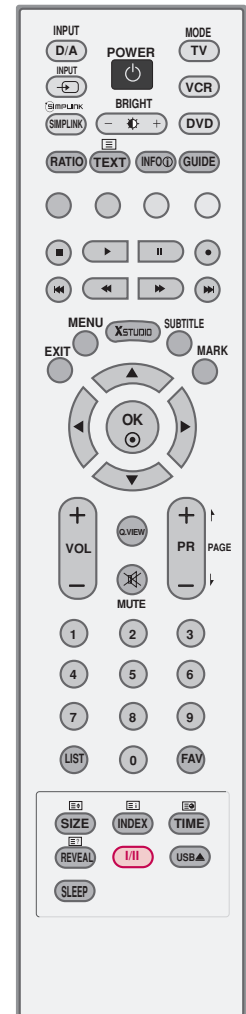
In AV 1-2, Component 1-2, RGB-PC, HDMI1/2/3 mode, you can select output sound for the left and right loudspeakers.

Repeatedly press the **I/II** button to select the sound output.

L+R: Audio signal from audio L input is sent to the left loud speaker and audio signal from audio R input is sent to the right loud speaker.

L+L: Audio signal from audio L input is sent to left and right loud speakers.

R+R: Audio signal from audio R input is sent to left and right loud speakers.



#### ! NOTE

- ▶ In digital mode, if the OSD (On Screen Display) is Displayed on the screen after press the **I/II** button, you can selected the audio language and type(MPEG or DOLBY DIGITAL).
- ▶ IN MPEG mode only, you can selected L or R audio sound.

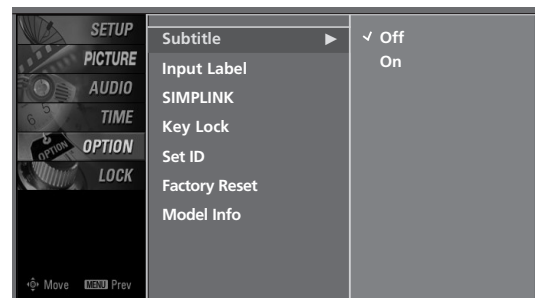
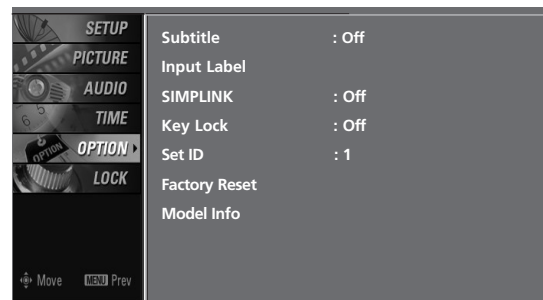


## SUBTITLE - In Digital Mode only

You can select Subtitle on or off with the **SUBTITLE** button in DTV mode.



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



# TIME SETTING

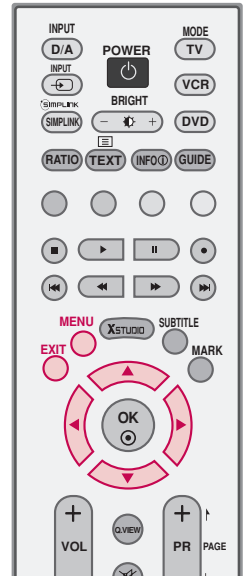
## CLOCK SETTING

### Auto Clock Setting

The time is set automatically from a digital channel signal.

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

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



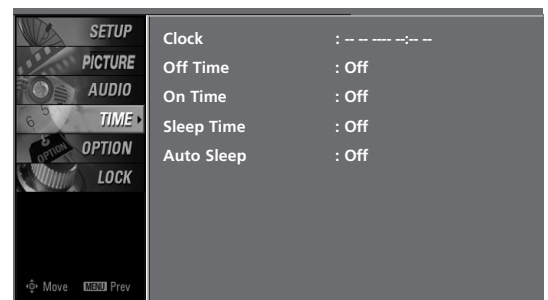
1 Press the **MENU** button and then use ▲ or ▼ button to select the **TIME** menu.

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

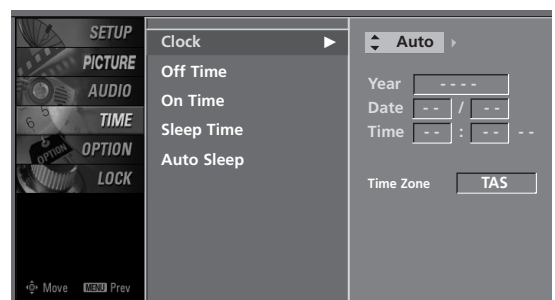
3 Press the ► button and then use ▲ or ▼ button to select **Auto**.

4 Press the ► button and then use ▲ or ▼ button to select your viewing area Time Zone :  
**NT, TAS, WA, SA, QLD, VIC, or NSW/ACT.**

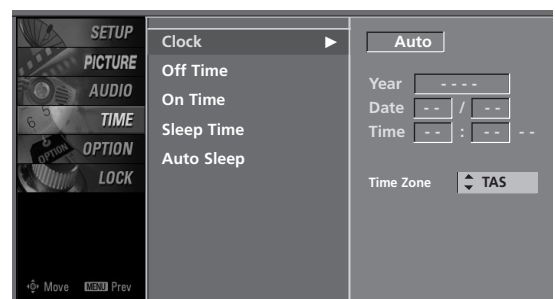
5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2 3 4 5

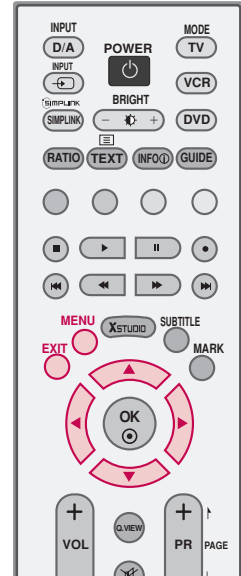


2 3 4 5

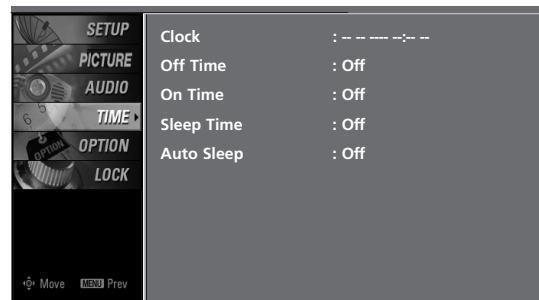


## Manual Clock Setting

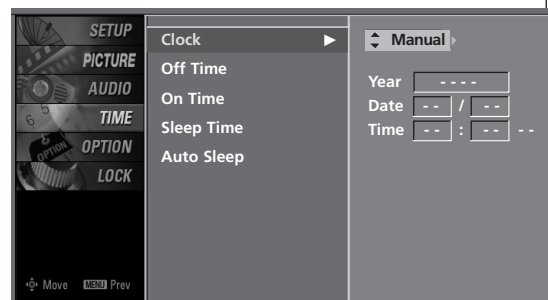
If the current time setting is wrong, reset the clock manually.



- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **TIME** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Clock**.
- 3 Press the ► button and then use ▲ or ▼ button to select **Manual**.
- 4 Press the ► button and then use ◀ or ▶ button to select either the year, date, or time option. Once selected, use the ▲ or ▼ button to set the year, date, and time options.
- 5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2 3

# TIME SETTING

## AUTO ON/OFF TIMER SETTING

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

The TV must be in standby mode for the On-Time to work.

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



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

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

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

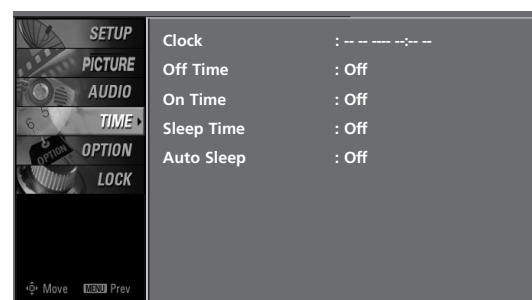
**4** Press the **▶** button and then use **▲** or **▼** button to set the hour.

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

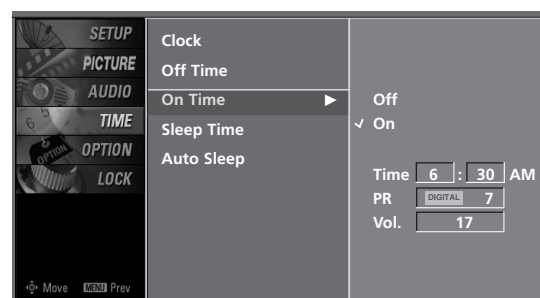
**6** **Only On Time**  
Press the **▶** button and then use **▲** or **▼** button to select the channel at turn-on.

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

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



**1**



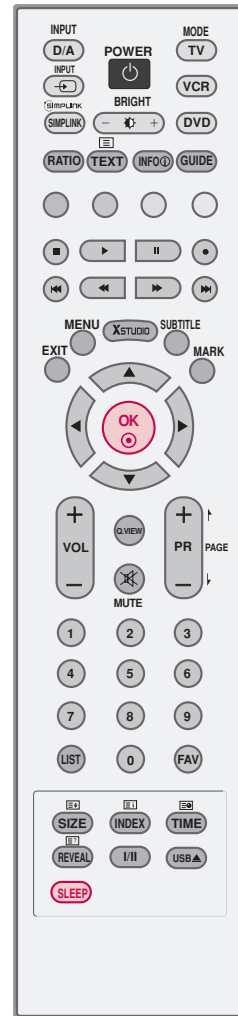
**2 3 4 5 6**

# SLEEP TIMER SETTING

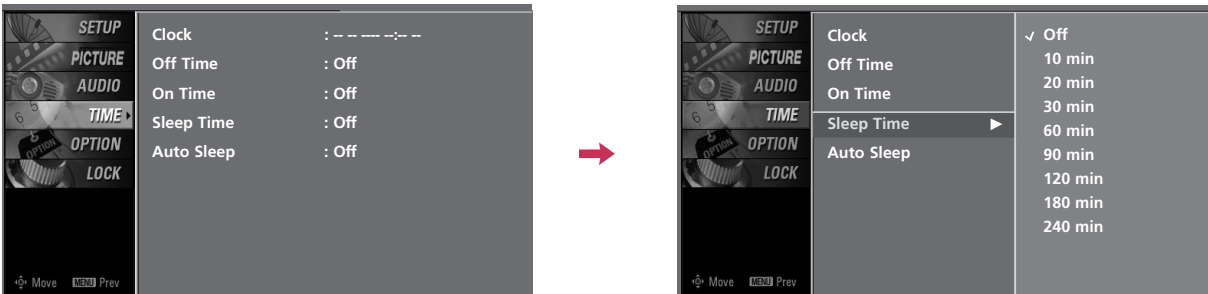
You don't have to remember to switch the set off before you go to sleep.

The sleep timer automatically switches the set to standby after the preset time has elapsed.

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



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



# TIME SETTING

## AUTO SHUT-OFF SETTING

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

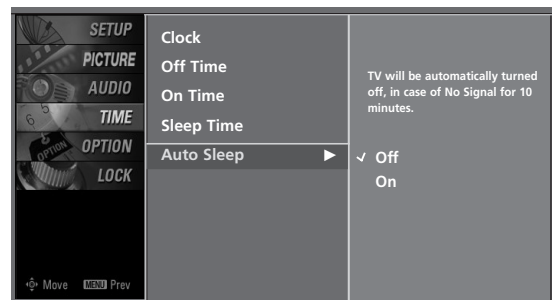
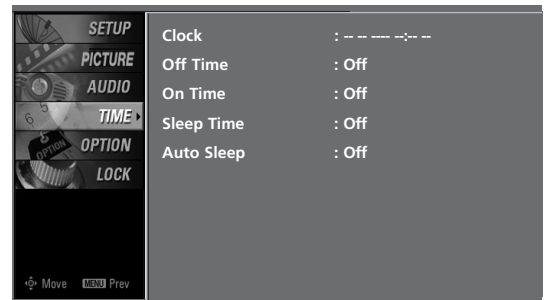


**1** Press the **MENU** button and then use **▲** or **▼** button to select the **TIME** menu.

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

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

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



# PARENTAL CONTROL / RATINGS

## SET PASSWORD & LOCK SYSTEM

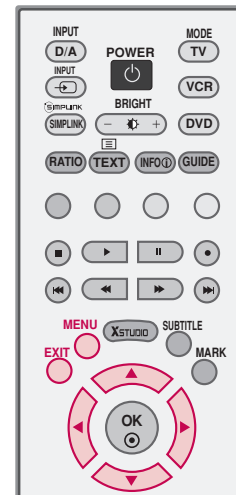
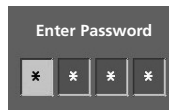
### Setting up your Password

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

A password is required to gain access to this menu.

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

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



### Set Password

Change the password by inputting a new password twice.

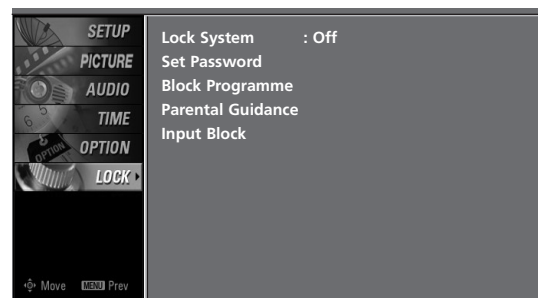
- 1 After inputting the password, use the **▲** or **▼** button to choose **Set Password**.

- 2 Press the **▶** button and then choose any 4 digits for your new password and enter them on the **New**.

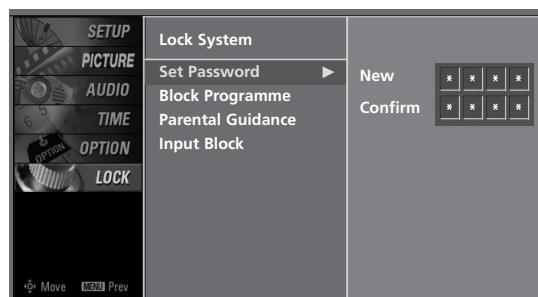
As soon as the 4 digits are entered, reenter the same 4 digits on the **Confirm**.

Then your changed password has been memorized.

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



1



2

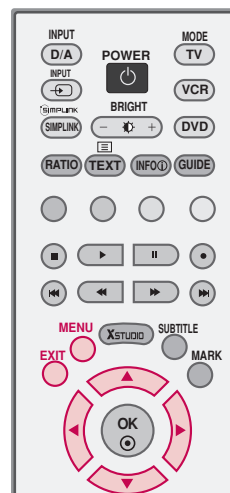
#### ! NOTE

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

# PARENTAL CONTROL / RATINGS

## Lock System

Enables or disables the blocking scheme you set up previously.

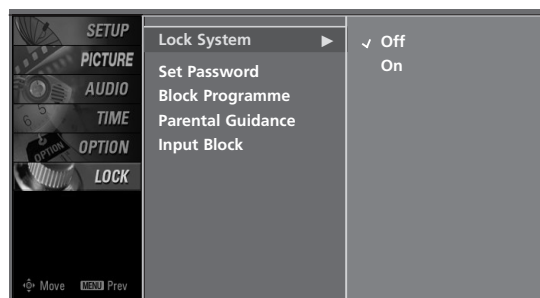
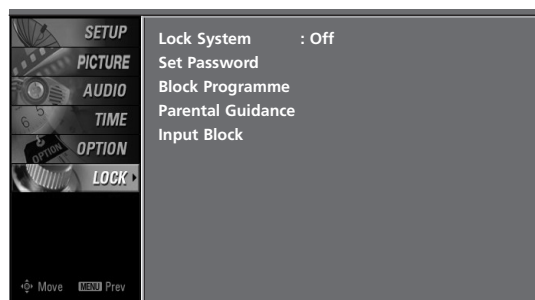


1 After inputting the password, use the ▲ or ▼ button to choose **Lock System**.

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

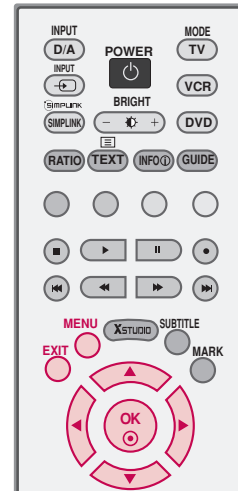
- When you select, the Lock System is enable.

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

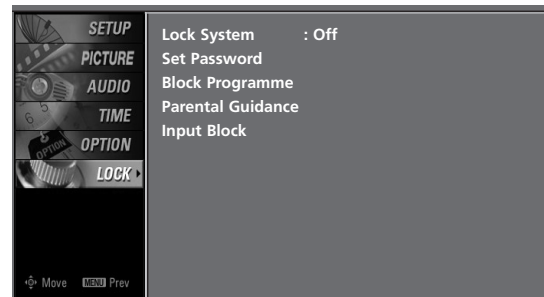


# PROGRAMME BLOCKING

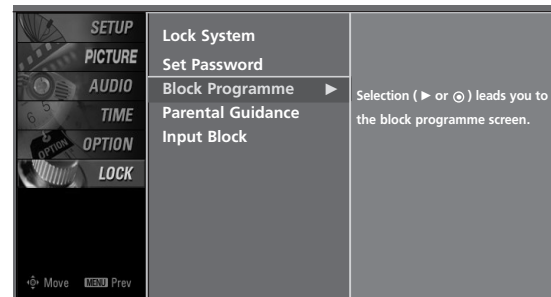
Blocks any programmes that you do not want to watch or that you do not want your children to watch.



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



1



2

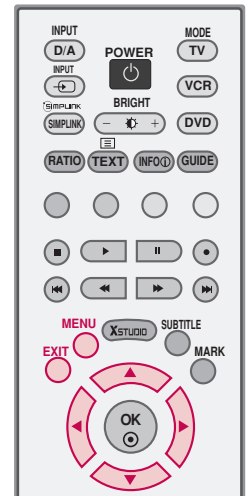


3

# PARENTAL CONTROL / RATINGS

## PARENTAL GUIDANCE - *In Digital Mode only*

Prevents children from watching certain children's TV programs, according to the ratings limit set.

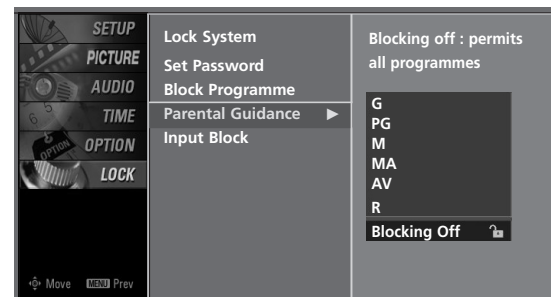
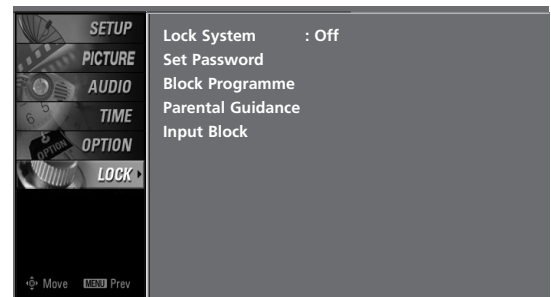


**1** After inputting the password, use the ▲ or ▼ button to choose **Parental Guidance**.

**2** Press the ► button and then use the ▲ or ▼ to select **G, PG, M, MA, AV** or **R**.

- G (General audiences)
- PG (Parental guidance suggested)
- M (Mature audiences)
- MA (Mature adult audiences)
- AV (Adult audiences)
- R (Restricted)
- Blocking Off (Permits all programmes)

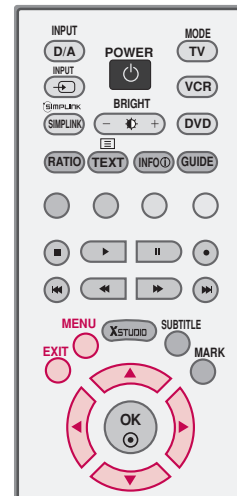
**3** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



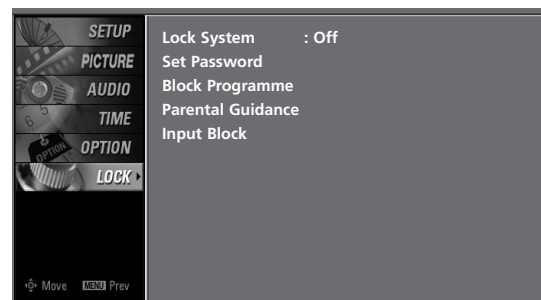


## EXTERNAL INPUT BLOCKING

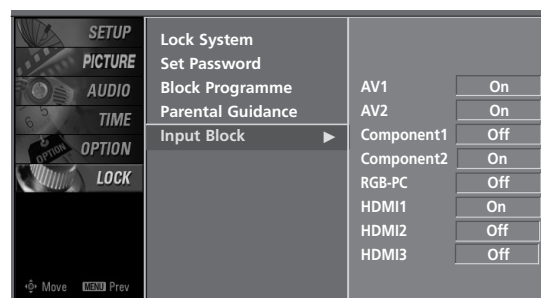
Enables you to select a source to block from the external source devices you have hooked up.



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



1



2

# TELETEXT

\* This feature is not available in all countries.

- Teletext is a free service broadcast by some TV stations which gives up-to-the-minute information on news, weather, television programmes, share prices and many other topics.
- The teletext decoder of this TV can support the SIMPLE, TOP and FASTEXT systems. SIMPLE (standard teletext) consists of a number of pages which are selected by directly entering the corresponding page number. TOP and FASTEXT are more modern methods allowing quick and easy selection of teletext information.

## Switch On/Off

Press the **TEXT** button to switch to teletext. The initial page or last page appears on the screen.

Two page numbers, TV station name, date and time are displayed on the screen headline. The first page number indicates your selection, while the second shows the current page displayed.

Press the **TEXT** or **EXIT** button to switch off teletext.

## SIMPLE Text

\* This feature is not available in all countries.

### ■ Page selection

- 1 Enter the desired page number as a three digit number with the NUMBER buttons. If during selection you press a wrong number, you must complete the three digit number and then re-enter the correct page number.
- 2 The **PR +** or **-** button can be used to select the preceding or following page.

## TOP Text

\* This feature is not available in all countries.

- The user guide displays four fields-red, green, yellow and blue at the bottom of the screen. The yellow field denotes the next group and the blue field indicates the next block.

### ■ Block / group / page selection

- 1 With the **BLUE** button you can progress from block to block.
- 2 Use the **YELLOW** button to proceed to the next group with automatic overflow to the next block.
- 3 With the **GREEN** button you can proceed to the next existing page with automatic overflow to the next group. Alternatively the **PR +** button can be used.
- 4 The **RED** button permits to return to previous selection. Alternatively the **PR-** button can be used.


### ■ Direct page selection

Corresponding to the SIMPLE teletext mode, you can select a page by entering it as a three digit number using the NUMBER buttons in TOP mode.

## FASTEXT

- The teletext pages are colour coded along the bottom of the screen and are selected by pressing the corresponding coloured button.

### ■ Page selection

1. Press the  button to select the index page.
2. You can select the pages which are colour coded along the bottom line with the same coloured buttons.
3. Corresponding to the SIMPLE teletext mode, you can select a page by entering its three digit page number with the NUMBER buttons in FASTEXT mode.
4. The **PR +** or **-** button can be used to select the preceding or following page.

## Special Teletext Functions



### REVEAL

Press this button to display concealed information, such as solutions of riddles or puzzles. Press this button again to remove the information from the display.



### TIME

When viewing a TV programme, press this button to display the time at the top right hand corner of the screen. Press this button again to remove the display.



### SIZE

Selects double height text. Press this button to enlarge the top half of the page. Press this button again to enlarge the bottom half of the page. Press this button again to return to the normal display.



### INDEX

Select the each index page

# APPENDIX

## TROUBLESHOOTING

### The operation does not work normally.

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

### The video function does not work.

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

**The audio function does not work.**

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

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

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

# APPENDIX

## MAINTENANCE

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

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

### Cleaning the Screen

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

### Cleaning the Cabinet

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

### Extended Absence

#### CAUTION

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

## PRODUCT SPECIFICATIONS

<b>32LB9D*</b> 32LB9D-AD	Dimensions (Width x Height x Depth)	with stand	31.7x24.4x11.2 inches 805.8x619.7x283.9 mm
		without stand	31.7x21.8x3.1 inches 805.8x554.1x79.0 mm
	Weight	with stand	32.6 pounds / 14.8kg
		without stand	27.8 pounds / 12.6kg
Power requirement			AC100-240V~ 50/60Hz 1.5A
<b>42LB9DF*</b> 42LB9DF-AD	Dimensions (Width x Height x Depth)	with stand	40.6x30.7x13.1 inches 1030.8x779.8x333.2 mm
		without stand	40.6x27.3x3.5 inches 1030.8x693x88.5 mm
	Weight	with stand	60.2 pounds / 27.3kg
		without stand	51.6 pounds / 23.4kg
Power requirement			AC100-240V~ 50/60Hz 2.5A
<b>47LB9DF*</b> 47LB9DF-AD	Dimensions (Width x Height x Depth)	with stand	45.3x33.8x15.0 inches 1150x858.7x380.1 mm
		without stand	45.3x30.2x4.1 inches 1150x767.8x103.0 mm
	Weight	with stand	83.3 pounds / 37.8kg
		without stand	70.1 pounds / 31.8kg
Power requirement			AC100-240V~ 50/60Hz 3.0A
<b>52LB9DF*</b> 52LB9DF-AD	Dimensions (Width x Height x Depth)	with stand	51.5x35.7x14.6 inches 1308.0x906.1x370.0 mm
		without stand	51.5x33.3x3.5 inches 1308.0x845.0x89.5 mm
	Weight	with stand	93.5 pounds / 42.4kg
		without stand	83.1 pounds / 37.7kg
Power requirement			AC100-240V~ 50/60Hz 3.2A
Television System Program Coverage External Antenna Impedance			PAL B/G, DVB-T VHF 0-12, UHF 20-75, CATV 02-44, DTV 06-12, 27-69 75 Ω
Environment condition	Operating Temperature		32~104°F (0 ~ 40°C)
	Operating Humidity		Less than 80%
	Storage Temperature		-4~104°F(-20 ~ 60°C)
	Storage Humidity		Less than 85%

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

# APPENDIX

<b>50PY3DF*</b> 50PY3DF-AA	Dimensions (Width x Height x Depth)	with stand	53.5x35.0x14.6 inches 1360.0x887.0x370.0 mm
		without stand	53.5x32.4x3.8 inches 1360.0x822.8x95.5 mm
	Weight	with stand	126.8 pounds / 57.5kg
		without stand	107.0 pounds / 48.5kg
Power requirement		AC100-240V~ 50/60Hz 4.9A	
<b>60PY3DF*</b> 60PY3DF-AA	Dimensions (Width x Height x Depth)	with stand	63.5x40.8x17.8 inches 1613.6x1036.8x452.0 mm
		without stand	63.5x38.2x3.9 inches 1613.6x970.0x98.5 mm
	Weight	with stand	178.6 pounds / 81.0kg
		without stand	143.3 pounds / 65.0kg
Power requirement		AC100-240V~ 50/60Hz 6.5A	
Television System External Antenna Impedance			PAL B/G, DVB-T VHF 0-12, UHF 20-75, CATV 02-44, DTV 06-12, 27-69 75 Ω
Environment condition	Operating Temperature Operating Humidity	32~104°F (0 ~ 40°C) Less than 80%	
	Storage Temperature Storage Humidity	-4~104°F(-20 ~ 60°C) Less than 85%	

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



<b>42PB4D*</b> 42PB4D-AA	Dimensions (Width x Height x Depth)	with stand	44.5x30.2x12.2 inches 1130x768.05x310.38 mm
		without stand	44.5x28.1x3.3 inches 1130x715x85 mm
	Weight	with stand	65.6 pounds / 29.74kg
		without stand	58 pounds / 26.34kg
Power requirement			AC100-240V~ 50/60Hz 3.5A
<b>50PB4D*</b> 50PB4D-AA	Dimensions (Width x Height x Depth)	with stand	51.5x35.7x14.6 inches 1308x906.1x370 mm
		without stand	51.5x33.3x3.5 inches 1308x845x88.9 mm
	Weight	with stand	88.1 pounds / 40kg
		without stand	82.2 pounds / 37.3kg
Power requirement			AC100-240V~ 50/60Hz 4.5A
Television System Program Coverage External Antenna Impedance			PAL B/G, DVB-T VHF 0-12, UHF 20-75, CATV 02-44, DTV 06-12, 27-69 75 Ω
Environment condition	Operating Temperature Operating Humidity		32~104°F (0 ~ 40°C) Less than 80%
	Storage Temperature Storage Humidity		-4~104°F(-20 ~ 60°C) Less than 85%

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

## PROGRAMMING THE REMOTE CONTROL

The remote is a multi-brand or a universal remote. It can be programmed to operate most remote-control-able devices of other manufacturers.

Note that the remote may not control all models of other brands.

### Programming a code into a remote mode

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

## Remote control code

### VCRs

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

# APPENDIX

## VCRs

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

## DVD

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

# IR CODES

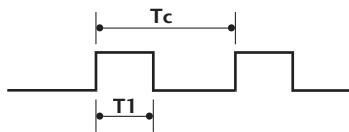
## 1. How to Connect

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

## 2. Remote Control IR Codes

### ■ Output waveform

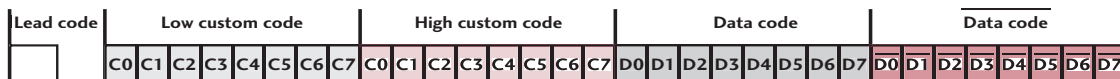
Single pulse, modulated with 37.917KHz signal at 455KHz



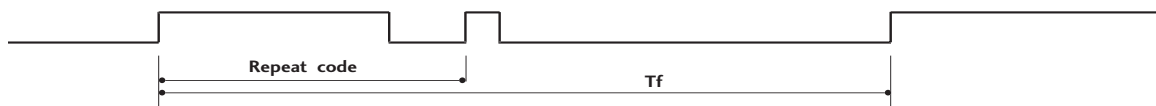
Carrier frequency  
 $FCAR = 1/T_C = f_{OSC}/12$   
 Duty ratio =  $T_1/T_C = 1/3$

### ■ Configuration of frame

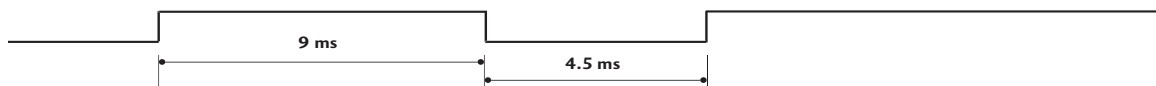
1st frame



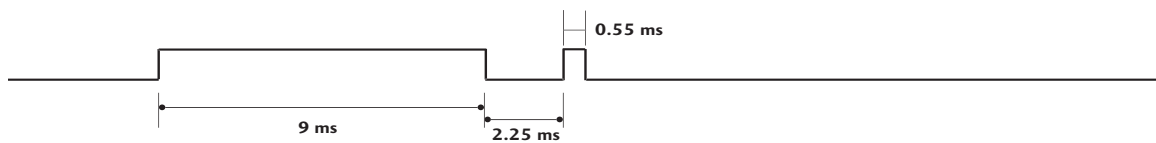
Repeat frame



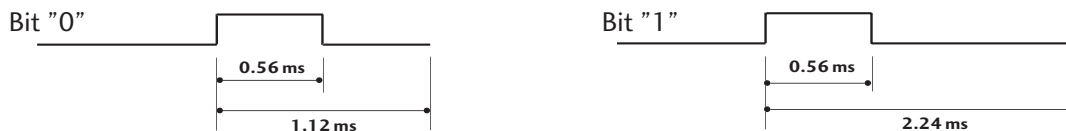
### ■ Lead code



### ■ Repeat code

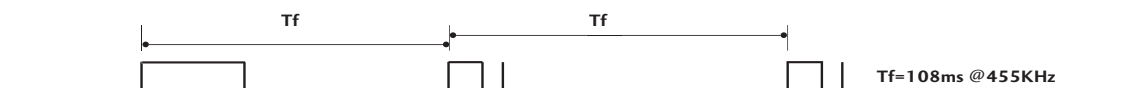


### ■ Bit description



### ■ Frame interval: $T_f$

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



# APPENDIX

Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
50	D/A INPUT	Remote control Button	64	SIZE	Remote control Button
0B	INPUT	Remote control Button	70	INDEX	Remote control Button
79	RATIO	Remote control Button	26	TIME	Remote control Button
0E	SLEEP	Remote control Button	2A	REVEAL	Remote control Button
10-19	Number Key 0-9	Remote control Button	20	TEXT	Remote control Button
1A	Q.VIEW	Remote control Button	72	RED	Remote control Button
09	MUTE	Remote control Button	71	GREEN	Remote control Button
02	VOL +	Remote control Button	63	YELLOW	Remote control Button
03	VOL -	Remote control Button	61	BLUE	Remote control Button
00	PR +	Remote control Button	53	LIST	Remote control Button
01	PR -	Remote control Button	0A	I/II	Remote control Button
1E	FAV	Remote control Button	AA	INFO	Remote control Button
40	▲	Remote control Button	E1	- 🔦	Remote control Button
41	▼	Remote control Button	E0	🔦 +	Remote control Button
07	◀	Remote control Button	B1	■	Remote control Button
06	▶	Remote control Button	B0	▶	Remote control Button
44	OK	Remote control Button	BA		Remote control Button
43	MENU	Remote control Button	BD	●	Remote control Button
5B	EXIT	Remote control Button	B2	⏪	Remote control Button
A9	GUIDE	Remote control Button	8F	⏮	Remote control Button
7E	SIMPLINK	Remote control Button	8E	⏭	Remote control Button
39	SUBTITLE	Remote control Button	B3	⏩	Remote control Button
08	POWER	Remote control Button	CA	USB▲	Remote control Button
7D	MARK	Remote control Button	7C	XSTUDIO	Remote control Button

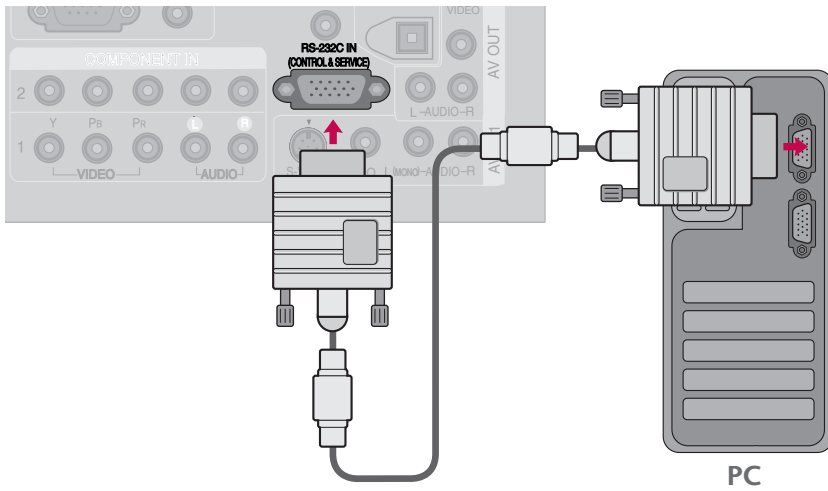
# EXTERNAL CONTROL THROUGH RS-232C

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

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

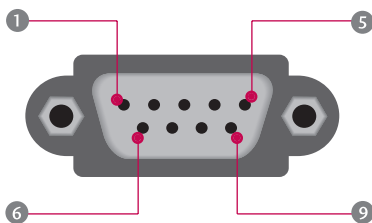
Note: RS-232C connection cables are not supplied with the product.

## RS-232C Setup



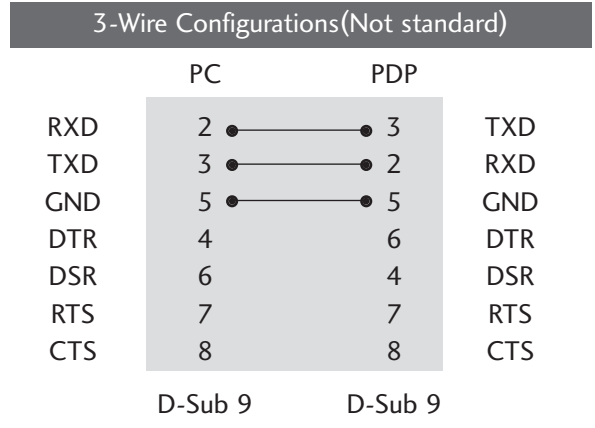
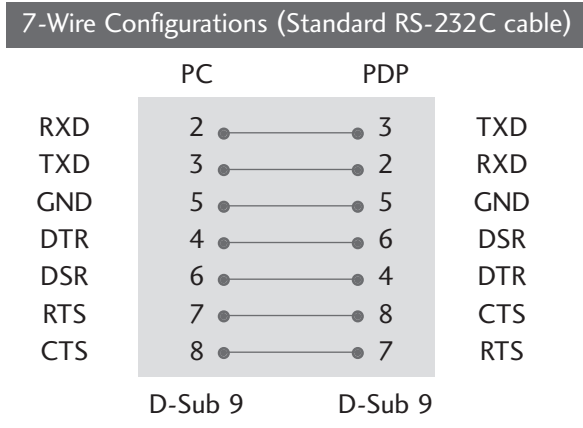
## Type of Connector; D-Sub 9-Pin Male

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



# APPENDIX

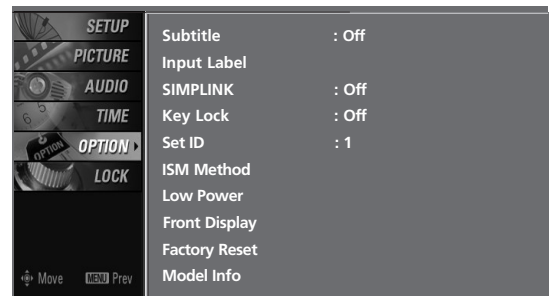
## RS-232C Configurations



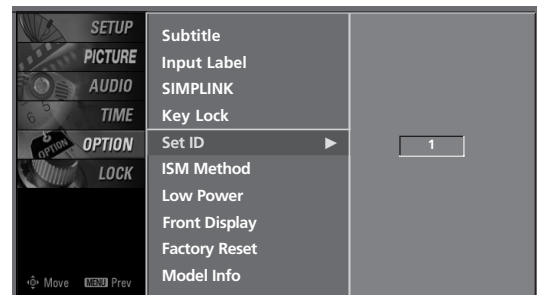
## Set ID

Use this function to specify a TV ID number.  
Refer to 'Real Data Mapping 1'. ▶ p.112

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



1



2 3

## Communication Parameters

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



## Command Reference List

	COMMAND1	COMMAND2	DATA (Hexadecimal)		COMMAND1	COMMAND2	DATA (Hexadecimal)
01. Power	k	a	0 ~ 1	16. Bass	k	s	0 ~ 64
02. Input Select	k	b	0 ~ 9	17. Balance	k	t	0 ~ 64
03. Aspect Ratio	k	c	See p.112	18. Colour Temperature	k	u	0 ~ 3
04. Screen Mute	k	d	0 ~ 1	19. Red Adjustment	k	v	0 ~ C8
05. Volume Mute	k	e	0 ~ 1	20. Green Adjustment	k	w	0 ~ C8
06. Volume Control	k	f	0 ~ 64	21. Blue Adjustment	k	\$	0 ~ C8
07. Contrast	k	g	0 ~ 64	22. Channel Tuning	m	a	See p.114
08. Brightness	k	h	0 ~ 64	23. ISM Method	j	p	0 ~ 3
09. Colour	k	i	0 ~ 64	24. Low Power	j	q	0 ~ 1
10. Tint	k	j	0 ~ 64	25. Orbiter Time Setting	j	r	1 ~ FE
11. Sharpness	k	k	0 ~ 64	26. Orbiter Pixel Setting	j	s	1 ~ 3
12. Back Light	m	g	See p.113	27. Send IR Code	m	c	See p.114
13. OSD Select	k	l	0 ~ 1	28. Input Select	x	b	See p.114
14. Remote Control/Key Lock	k	m	0 ~ 1				
15. Treble	k	r	0 ~ 64				

Plasma TV models only

## Transmission / Receiving Protocol

### Transmission

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

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

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

[Set ID] : You can adjust the set ID to choose desired TV ID number in Setup menu. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected the TV is controlled. Set ID is indicated as decimal (1 ~ 99) on menu and as Hexa decimal (0x0 ~ 0x63) on transmission/receiving protocol.

[DATA] : To transmit command data.

Transmit 'FF' data to read status of command.

[Cr] : Carriage Return

ASCII code '0x0D'

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

### OK Acknowledgement

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

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

### Error Acknowledgement

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

The TV transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data1: Illegal Code

Data2: Not supported function

Data3: Wait more time

# APPENDIX

## 01. Power (Command2:a)

To control Power On/Off of the TV.

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

Data 0 : Power Off      Data 1 : Power On

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

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

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

There might be a time delay between command and acknowledge.

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

To select input source for the TV.

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

Data 0: DTV                  Data 1: Analog

Data 2: AV1                  Data 3: AV2

Data 4: Component 1      Data 5: Component 2

Data 6: RGB-PC            Data 7: HDMI1

Data 8: HDMI2              Data 9: HDMI3

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

## 03. Aspect Ratio (Command2:c)

To adjust the screen format.

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

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

Date 0: Auto                  1: 4:3

2: 16:9

3: 14:9 (-10) ~ D: 14:9 (0) ~ 17: 14:9 (10)

18: Zoom (-16) ~ 28: Zpom (0) ~ 38: Zoom (16)

39: 1:1 Pixel(Full HD Only)

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

\* Using the PC input, you select either 16:9 or 4:3 screen aspect ratio.

\* In HDMI/DVI(1080i or 1080p)mode, 1:1 Pixel is available.

## 04. Screen Mute (Command2:d)

To select screen mute on/off.

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

Data 0 : Screen mute off (Picture on)

Data 1 : Screen mute on (Picture off)

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

## 05. Volume Mute (Command2:e)

To control volume mute on/off.

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

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

Data 0 : Volume mute on (Volume off)

Data 1 : Volume mute off (Volume on)

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

## 06. Volume Control (Command2:f)

To adjust volume.

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

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

Data Min : 0 ~ Max : 64

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

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

## 07. Contrast (Command2:g)

To adjust screen contrast.

You can also adjust contrast in the Picture menu.

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

Data Min : 0 ~ Max : 64

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

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

## 08. Brightness (Command2:h)

To adjust screen brightness.

You can also adjust brightness in the Picture menu.

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

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

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

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

\*Real data mapping 1

0 : Step 0

⋮

A : Step 10 (SET ID 10)

⋮

F : Step 15 (SET ID 15)

10 : Step 16 (SET ID 16)

⋮

63 : Step 99 (SET ID 99)

64 : Step 100

### 09. Colour (Command2:i)

To adjust the screen colour.

You can also adjust colour in the Picture menu.

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

Data Min : 0 ~ Max : 64

\*Refer to 'Real data mapping 1'. See page 112.

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

### 10. Tint (Command2:j)

To adjust the screen tint.

You can also adjust tint in the Picture menu.

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

Data Red : 0 ~ Green : 64

\*Refer to 'Real data mapping 1'. See page 112.

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

### 11. Sharpness (Command2:k)

To adjust the screen sharpness.

You can also adjust sharpness in the Picture menu.

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

Data Min: 0 ~ Max: 64

\*Refer to 'Real data mapping 1'. See page 112.

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

### 12. Back light(Command: m g) (LCD only)

To adjust screen back light.

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

Data Min:0 ~ Max:64

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

### 13. OSD Select (Command2:l)

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

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

Data 0: OSD off                      Data 1: OSD on

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

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

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

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

Data 0: Lock off                      Data 1: Lock on

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

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

### 15 Treble (Command2:r)

To adjust treble.

You can also adjust treble in the Audio menu.

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

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

\*Refer to 'Real data mapping 1'. See page 112.

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

### 16. Bass (Command2:s)

To adjust bass.

You can also adjust bass in the Audio menu.

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

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

\*Refer to 'Real data mapping 1'. See page 112.

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

### 17. Balance (Command2:t)

To adjust balance.

You can also adjust balance in the Audio menu.

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

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

\*Refer to 'Real data mapping 1'. See page 112.

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

### 18. Colour Temperature (Command2:u)

To adjust colour temperature.

You can also adjust colour temperature in the Picture menu.

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

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

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

### 19. Red adjustment(Command2:v)

To adjust red in colour temperature

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

Data Min:0 ~ Max:C8

\*Refer to "Real data mapping 2". See page 114.

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

\*In User Mode, Colour Temperature is available.

# APPENDIX

## 20. Green Adjustment(Command:w)

To adjust green in colour temperature.

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

Data Min:0 ~ Max:C8

\*Refer to "Real data mapping 2" as shown below

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

## 21. Blue adjustment(Command:\$)

To adjust blue in colour temperature.

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

Data Min:0 ~ Max:C8

\*Refer to "Real data mapping 2".

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

\*In User Mode, Colour Temperature is available.

\*Real data mapping 2

0 : -20

5 : -19

A : -18

5F: -1

64: 0

69: +1

C3 : +19

C8 : +20

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

To tune channel to following programme number

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

Data 0: High channel data

Data 1: Low channel data

Data 2: 00: Analogue TV

10: Digital TV

ex) Analogue TV : ma 0 00 01 00

\* Channel Data Range:

Analogue TV: 0 ~ 63

Digital TV: 0 ~ 3E

## 23. ISM Method (Command2:p)

To control the ISM method. You can also adjust ISM method in OPTION menu.

*This feature is not available for all models.*

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

Data 0: Normal Data 1: Orbiter

Data 2: Inversion Data 3: White Wash

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

## 24. Low Power (Command2:q)

To reduce the power consumption of the set. You can also adjust Low power in OPTION menu.

*This feature is not available for all models.*

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

Data 0: low power off

1: low power on

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

## 25. Orbiter Time Setting (Command2:r)

To adjust orbiter operation time term.

*This feature is not available for all models.*

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

Data Min: 1 ~ Max: FE(\*transmit by Hexadecimal code),

Unit: Second

\*Refer to 'Real data mapping1'. See page 112.

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

## 26. Orbiter Pixel Setting (Command2:s)

To adjust pixel number in orbiter function.

*This feature is not available for all models.*

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

Data Min: 1 ~ Max: 3

\*Refer to 'Real data mapping1'. See page 112.

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

## 27. Send IR Code (Command: m c)

To send IR remote key code

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

Data Key code: Refer to page 108.

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

## 28. Input Select(Command: x b)

To select input source for TV.

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

Data 00 : Digital Data 41 : Component2

Data 10 : Analogue Data 50 : RGB-PC

Data 20 : AV1 Data 90 : HDMI1

Data 21 : AV2 Data 91 : HDMI2

Data 40 : Component1 Data 92 : HDMI3

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

# OPEN SOURCE LICENSE

## GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

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

### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

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

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

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

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

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

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

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

### 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.

## APPENDIX

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

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

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

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

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

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

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

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

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

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

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

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

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

# APPENDIX

## 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 designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

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

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

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

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

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

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

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

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

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

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

# APPENDIX

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 licensee is addressed as "you".

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

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

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

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

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

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

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

# APPENDIX

- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

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

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

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

- a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
- b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

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

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### END OF TERMS AND CONDITIONS

##### How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and 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

## MOZILLA PUBLIC LICENSE

Version 1.1

-----

### 1. Definitions.

- 1.0.1. "Commercial Use" means distribution or otherwise making the Covered Code available to a third party.
- 1.1. "Contributor" means each entity that creates or contributes to the creation of Modifications.
- 1.2. "Contributor Version" means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.
- 1.3. "Covered Code" means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof.
- 1.4. "Electronic Distribution Mechanism" means a mechanism generally accepted in the software development community for the electronic transfer of data.
- 1.5. "Executable" means Covered Code in any form other than Source Code.
- 1.6. "Initial Developer" means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.
- 1.7. "Larger Work" means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.
- 1.8. "License" means this document.
- 1.8.1. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.
- 1.9. "Modifications" means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:
- A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.
  - B. Any new file that contains any part of the Original Code or previous Modifications.
- 1.10. "Original Code" means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.
- 1.10.1. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.
- 1.11. "Source Code" means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.
- 1.12. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

### 2. Source Code License.

#### 2.1. The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

- (a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices.

## 2.2. Contributor Grant.

Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications made by that Contributor.

## 3. Distribution Obligations.

### 3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

### 3.2. Availability of Source Code.

Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

### 3.3. Description of Modifications.

You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

### 3.4. Intellectual Property Matters

#### (a) Third Party Claims.

If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

# APPENDIX

## (b) Contributor APIs.

If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

## (c) Representations.

Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License.

### 3.5. Required Notices.

You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s)

You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial

Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

### 3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this

License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

### 3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

## 4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the

extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

## 5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

## 6. Versions of the License.

### 6.1. New Versions.

Netscape Communications Corporation ("Netscape") may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

### 6.2. Effect of New Versions.

Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Netscape. No one other than Netscape has the right to modify the terms applicable to Covered Code created under this License.



### 6.3. Derivative Works.

If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename Your license so that the phrases "Mozilla", "MOZILLAPL", "MOZPL", "Netscape", "MPL", "NPL" or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the Mozilla Public License and Netscape Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

## 7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. 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.

# APPENDIX

## 10. U.S. GOVERNMENT END USERS.

The Covered Code is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" and "commercial computer software documentation," as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

## 11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

## 12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

## 13. MULTIPLE-LICENSED CODE.

Initial Developer may designate portions of the Covered Code as "Multiple-Licensed". "Multiple-Licensed" means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the 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.**