



Contact SAMSUNG WORLDWIDE

If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care center.

Contate a SAMSUNG EM TODO O MUNDO

Caso tenha dúvidas ou comentários sobre os produtos da Samsung, entre em contato com o centro de atendimento ao cliente da SAMSUNG.

Country	Customer Care Center ☎	Web Site
ARGENTINA	0800-333-3733	www.samsung.com/ar
BRAZIL	0800-124-421 4004-0000	www.samsung.com/br
CHILE	800-SAMSUNG(726-7864)	www.samsung.com/cl
COLOMBIA	01-8000112112	www.samsung.com.co
COSTA RICA	0-800-507-7267	www.samsung.com/latin
ECUADOR	1-800-10-7267	www.samsung.com/latin
EL SALVADOR	800-6225	www.samsung.com/latin
GUATEMALA	1-800-299-0013	www.samsung.com/latin
HONDURAS	800-7919267	www.samsung.com/latin
JAMAICA	1-800-234-7267	www.samsung.com/latin
PANAMA	800-7267	www.samsung.com/latin
PUERTO RICO	1-800-682-3180	www.samsung.com/latin
REP. DOMINICA	1-800-751-2676	www.samsung.com/latin
NICARAGUA	00-1800-5077267	www.samsung.com/latin
MEXICO	01-800-SAMSUNG(726-7864)	www.samsung.com/mx
TRINIDAD & TOBAGO	1-800-SAMSUNG(726-7864)	www.samsung.com/latin
VENEZUELA	0-800-100-5303	www.samsung.com/latin

IMPORTADO POR:
AV. PRESIDENTE MASARIK #111 INT701
COL. CHAPULTEPEC MORALES C.P.11570
DELEGACION MIGUEL HIDALGO MEXICO. DISTRITO FEDERAL
Tel: 01-55-5747-5100 / 01-800-726-7864



BN68-01919B-00

SERIES **4**
460
450

LCD TV user manual

imagine the possibilities

Thank you for purchasing this Samsung product.
To receive more complete service, please register
your product at


www.samsung.com.br

Model _____ Serial No. _____



□ License



TruSurround HD, SRS and  Symbol are trademarks of SRS Labs, Inc.
TruSurround HD technology is incorporated under license from SRS Labs, Inc.

□ Precautions When Displaying a Still Image

A still image may cause permanent damage to the TV screen.

Do not display a still image on the LCD panel for more than 2 hours as it can cause screen image retention. This image retention is also known as screen burn. To avoid such image retention, reduce the degree of brightness and contrast of the screen when displaying a still image.



Watching the LCD TV in 4:3 format for a long period of time may leave traces of borders displayed on the left, right and center of the screen caused by the difference of light emission on the screen. Playing a DVD or a game console may cause a similar effect to the screen. Damages caused by the above effect are not covered by the Warranty.

Displaying still images from Video games and PC for longer than a certain period of time may produce partial after-images. To prevent this effect, reduce the 'brightness' and 'contrast' when displaying still images.

Contents

GENERAL INFORMATION

■ List of Features	2
■ Accessories	2
■ Viewing the Control Panel	3
■ Viewing the Connection Panel	4
■ Remote Control	5
■ Installing Batteries in the Remote Control	5

CONNECTIONS

■ Connecting VHF and UHF Antennas	6
■ Connecting Cable TV	7
■ Connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) via HDMI	8
■ Connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) via DVI	8
■ Connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) via Component cables	9
■ Connecting a Camcorder	9
■ Connecting a VCR	10
■ Connecting a Digital Audio System	10
■ Connecting an Amplifier/DVD Home Theater	11
■ Connecting a PC	12

OPERATION

■ Viewing the menus	13
■ Placing Your Television in Standby Mode	14
■ Plug & Play Feature	14

CHANNEL

■ Channel Menu	15
■ Managing Channels	17

PICTURE

■ Picture Menu	19
■ PC Display	23
■ Setting up the TV with your PC	24

SOUND

■ Sound Menu	25
■ Connecting Headphones (Sold separately)	26

SETUP

■ Setup Menu	27
--------------------	----

INPUT / SUPPORT

■ Input Menu	30
■ Support Menu	30

APPENDIX

■ Troubleshooting	32
■ Installing the Stand	33
■ Disconnecting the Stand	33
■ Wall Mount Kit Specifications (VESA)	34
■ Anti-Theft Kensington Lock	34
■ Securing the Installation Space	35
■ Securing the TV to the Wall	35
■ Specifications	36
■ GNU GENERAL PUBLIC LICENSE	
■ END OF TERMS AND CONDITIONS	
■ GNU Lesser General Public License (LGPL)	
■ END OF TERMS AND CONDITIONS	
■ LICENSE ISSUES	



Symbol



Note



One-Touch Button



TOOL Button



Press

GENERAL INFORMATION

List of Features

- Adjustable picture settings that can be stored in the TV's memory.
- Automatic timer to turn the TV on and off.
- A special sleep timer.
- Excellent Digital Interface & Networking : With a built-in HD digital tuner, non-subscription HD broadcasts can be viewed with no Cable Box/Satellite receiver (Set-Top Box) needed.
- HDMI/DVI connection of your PC to this TV.
- Excellent Picture Quality
- SRS TruSurround HD provides a virtual surround system.

Accessories

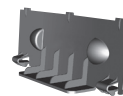
- ☑ Please make sure the following items are included with your LCD TV. If any items are missing, contact your dealer.
- ☑ The items color and shape may vary depending on the model.



Remote Control & Batteries (AAA x 2)



Power Cord



Cover-Bottom



Cleaning Cloth



(M4 X L16)

Stand Screw X 4



Warranty Card / Safety Guide



(M4 X L14)

Stand Screw X 3
(LN32B450)

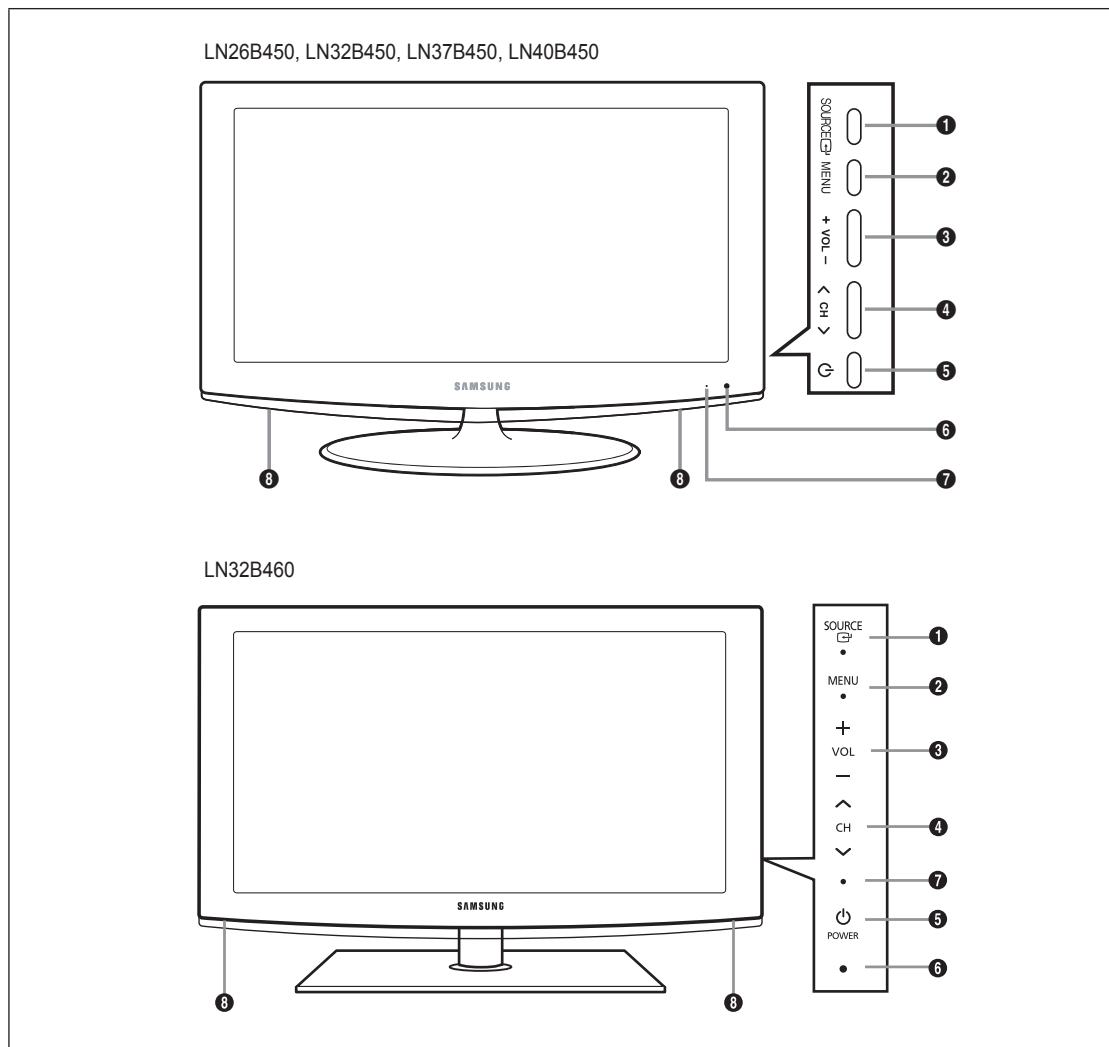




(M4 X L16)

Stand Screw X 4
(LN32B460)

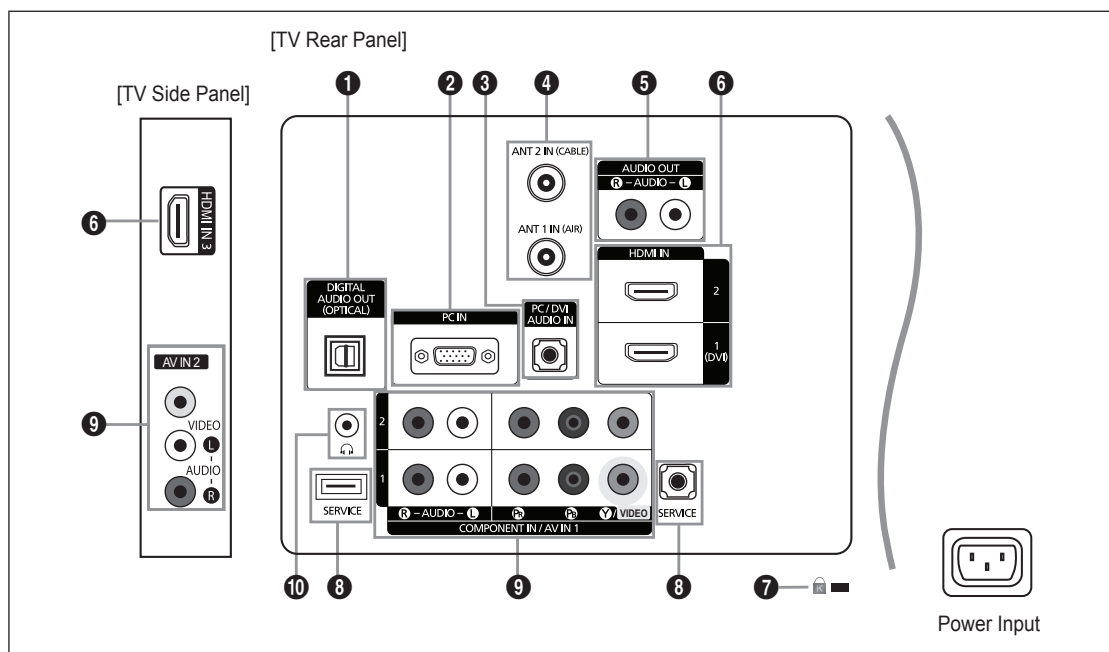
Viewing the Control Panel

- ☑ The product color and shape may vary depending on the model.
- ☑ You can use a button by pressing the side panel buttons.(LN26B450, LN32B450, LN37B450, LN40B450)
- ☑ The front panel buttons can be activated by touching them with your finger.(LN32B460)



- ❶ **SOURCE** : Toggles between all the available input sources. In the on-screen menu, use this button as you use the **ENTER**  button on the remote control.
- ❷ **MENU**: Press to see an on-screen menu of your TV's features.
- ❸ **+ VOL -**: Press to increase or decrease the volume. In the on-screen menu, use the **+ VOL -** buttons as you would use the **◀** and **▶** buttons on the remote control.
- ❹ **< CH >**: Press to change channels. In the onscreen menu, use the **< CH >** buttons as you would use the **▼** and **▲** buttons on the remote control.
- ❺ **⏻ (POWER)**: Press to turn the TV on and off.
- ❻ **REMOTE CONTROL SENSOR**: Aim the remote control towards this spot on the TV.
- ❼ **POWER INDICATOR**: Blinks and turns off when the power is on and lights up in stand-by mode.
- ❽ **SPEAKERS**

Viewing the Connection Panel



☞ The product color and shape may vary depending on the model.

1 DIGITAL AUDIO OUT (OPTICAL)

Connects to a Digital Audio component such as a Home theater receiver.

2 PC IN

Connects to the video and audio output jacks on your PC.

3 PC/DVI AUDIO IN

Connect to the audio output jack on your PC.
DVI audio outputs for external devices.

4 ANT 1 IN (AIR) / ANT 2 IN (CABLE)

Connects to an antenna or cable TV system.

5 AUDIO OUT [R-AUDIO-L]

Connects to the audio input jacks on your Amplifier/Home theater.

6 HDMI IN 1 (DVI), 2, 3

Connects to the HDMI jack of a device with an HDMI output.

☞ No sound connection is needed for an HDMI to HDMI connection.

☞ Use the **HDMI IN 1 (DVI)** jack for DVI connection to an external device. Use a DVI to HDMI cable or DVI-HDMI adapter (DVI to HDMI) for video connection and the **PC / DVI AUDIO IN** jacks for audio. When using an HDMI / DVI cable connection, you must use the **HDMI IN 1 (DVI)** jack.

7 KENSINGTON LOCK

The Kensington Lock (optional) is a device used to physically fix the system when used in a public place. If you want to use a locking device, contact the dealer where you purchased the TV.

☞ The location of the Kensington Lock may be different depending on its model.

8 SERVICE

Connector for service only.

9 COMPONENT IN 1, 2

Connects Component video / audio. The **COMPONENT IN 1** jack is also used as the **AV IN 1** jack.

☞ Connect the video cable to the **COMPONENT IN 1 [Y/VIDEO]** jack and the audio cable to the **COMPONENT IN 1 [R-AUDIO-L]** jacks.

AV IN 1, 2 [VIDEO] / [R-AUDIO-L]

Video and audio inputs for external devices, such as a camcorder or VCR.

10 🎧 (HEADPHONE)

Headphone may be connected to the headphone output on your set. While the head phone is connected, the sound from the built-in speakers will be disabled.

- 📌 Using the sound function is restricted when connecting headphones to the TV.
- 📌 Prolonged use of headphones at a high volume may damage your hearing.
- 📌 You will not hear sound from the speakers when you connect headphones to the TV.
- 📌 The headphone volume and TV volume are adjusted separately.

Remote Control

- 📌 You can use the remote control up to a distance of about 23 feet from the TV.
- 📌 The performance of the remote control may be affected by bright light.
- 📌 The product color and shape may vary depending on the model.

1 POWER: Turns the TV on and off.

2 NUMERIC BUTTONS: Press to change the channel.

3 []: Press to select additional channels (digital) being broadcast by the same station. For example, to select channel '54-3', press '54', then press '[]' and '3'.

4 MUTE 🎧: Press to temporarily cut off the sound.

5 - VOL + : Press to increase or decrease the volume.

6 CH LIST: Used to display Channel Lists on the screen.

7 TOOLS: Use to quickly select frequently used functions.

8 INFO: Press to display information on the TV screen.

9 COLOR BUTTONS: Use these buttons in the **Channel list** menu, etc.

10 P.SIZE: Picture size selection.

11 TV: Selects the TV mode directly.

12 PRE-CH: Enables you to return to the previous channel you were watching.

13 ∇ CH ▲: Press to change channels.

14 SOURCE: Press to display and select the available video sources.

15 FAV.CH: Press to switch to your favorite channels.

16 MENU: Displays the main on-screen menu.

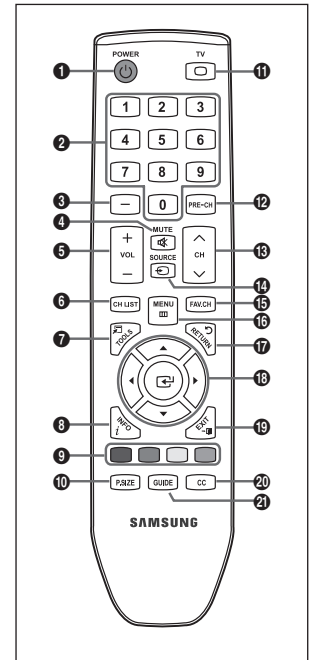
17 RETURN: Returns to the previous menu.

18 UP ▲/DOWN ▼/LEFT ◀/RIGHT ▶/ENTER []: Use to select on-screen menu items and change menu values.

19 EXIT: Press to exit the menu.

20 CC: Controls the caption decoder.

21 GUIDE: Electronic Programme Guide (EPG) display



Installing Batteries in the Remote Control

1. Lift the cover at the back of the remote control upward as shown in the figure.

2. Install two AAA size batteries.

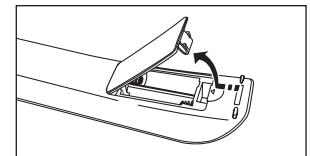
- 📌 Make sure to match the '+' and '-' ends of the batteries with the diagram inside the compartment.

3. Replace the cover.

- 📌 Remove the batteries and store them in a cool, dry place if you won't be using the remote control for a long time. (Assuming typical TV usage, the batteries should last for about one year.)

📌 If the remote control doesn't work, check the following:

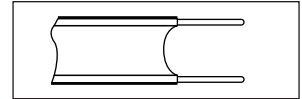
- Is the TV power on?
- Are the plus and minus ends of the batteries reversed?
- Are the batteries drained?
- Is there a power outage or is the power cord unplugged?
- Is there a special fluorescent light or neon sign nearby?



CONNECTIONS

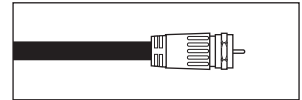
Connecting VHF and UHF Antennas

If your antenna has a set of leads that look like the diagram to the right, see 'Antennas with 300 Ω Flat Twin Leads' below.



If your antenna has one lead that looks like the diagram to the right, see 'Antennas with 75 Ω Round Leads'.

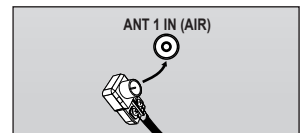
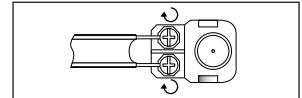
If you have two antennas, see 'Separate VHF and UHF Antennas'.



Antennas with 300 Ω Flat Twin Leads

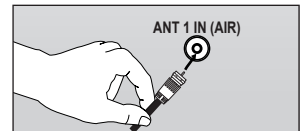
If you are using an off-air antenna (such as a roof antenna or 'rabbit ears') that has 300 Ω twin flat leads, follow the directions below.

1. Place the wires from the twin leads under the screws on a 300-75 Ω adaptor (not supplied). Use a screwdriver to tighten the screws.
2. Plug the adaptor into the **ANT 1 IN (AIR)** terminal on the back of the TV.



Antennas with 75 Ω Round Leads

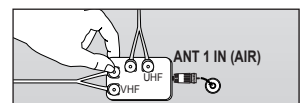
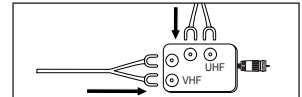
Plug the antenna lead into the **ANT 1 IN (AIR)** terminal on the back of the TV.



Separate VHF and UHF Antennas

If you have two separate antennas for your TV (one VHF and one UHF), you must combine the two antenna signals before connecting the antennas to the TV. This procedure requires an optional combiner-adaptor (available at most electronics shops).

1. Connect both antenna leads to the combiner.
2. Plug the combiner into the **ANT 1 IN (AIR)** terminal on the bottom of the rear panel.



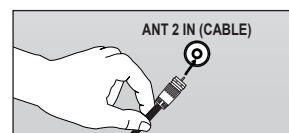
Connecting Cable TV

To connect to a cable TV system, follow the instructions below.

Cable without a Cable Box

Plug the incoming cable into the **ANT 2 IN (CABLE)** terminal on the back of the TV.

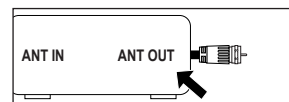
- Because this TV is cable-ready, you do not need a cable box to view unscrambled cable channels.



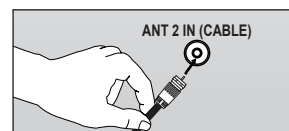
Connecting to a Cable Box that Descrambles All Channels

1. Find the cable that is connected to the ANT OUT terminal on your cable box.

- This terminal might be labeled 'ANT OUT', 'VHF OUT' or simply, 'OUT'.

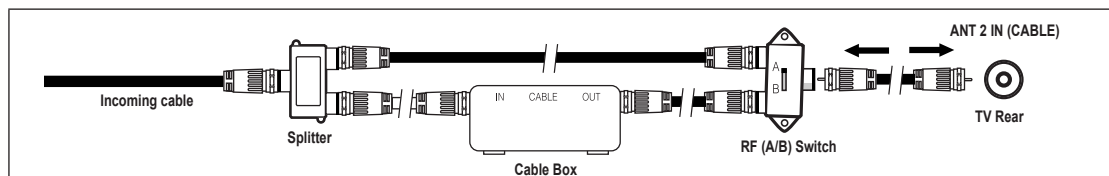


2. Connect the other end of this cable to the **ANT 2 IN (CABLE)** terminal on the back of the TV.



Connecting to a Cable Box that Descrambles Some Channels

If your cable box descrambles only some channels (such as premium channels), follow the instructions below. You will need a two-way splitter, an RF (A/B) switch and four lengths of RF cable. (These items are available at most electronics stores.)

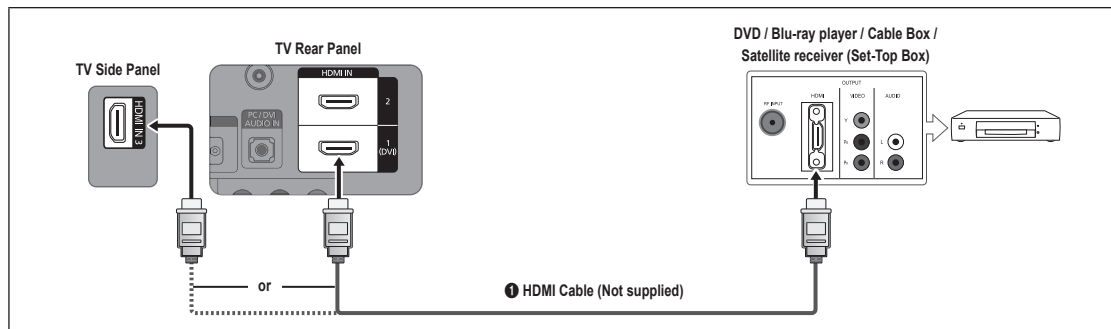


1. Find and disconnect the cable that is connected to the ANT IN terminal on your cable box.
 - This terminal might be labeled 'ANT IN', 'VHF IN' or simply, 'IN'.
2. Connect this cable to a two-way splitter.
3. Connect an RF cable between the OUTPUT terminal on the splitter and the IN terminal on the cable box.
4. Connect an RF cable between the ANT OUT terminal on the cable box and the B-IN terminal on the RF(A/B) switch.
5. Connect another cable between the other OUT terminal on the splitter and the A-IN terminal on the RF (A/B) switch.
6. Connect the last RF cable between the OUT terminal on the RF (A/B) switch and the **ANT 2 IN (CABLE)** terminal on the rear of the TV.

After you have made this connection, set the A/B switch to the 'A' position for normal viewing. Set the A/B switch to the 'B' position to view scrambled channels. (When you set the A/B switch to 'B', you will need to tune your TV to the cable box's output channel, which is usually channel 3 or 4.)

Connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) via HDMI

This connection can only be made if there is an HDMI Output connector on the external device.



1. Connect an HDMI Cable between the **HDMI IN 1 (DVI)**, **2**, **3** jack on the TV and the HDMI jack on the DVD Player or Cable Box / Satellite receiver (Set-Top Box).

What is HDMI?

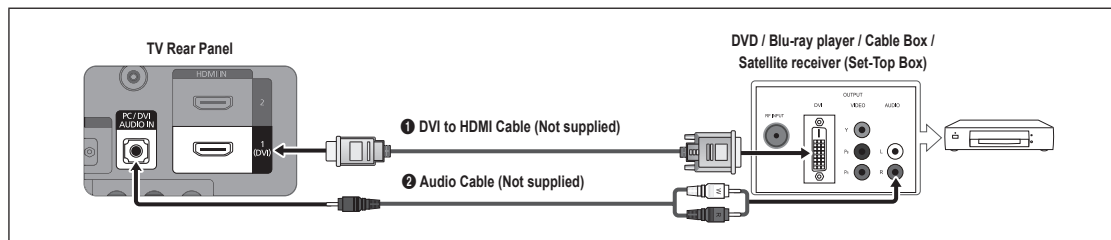
- HDMI (High-Definition Multimedia Interface), is an interface that enables the transmission of digital audio and video signals using a single cable.
- The difference between HDMI and DVI is that the HDMI device is smaller in size and has the HDCP (High Bandwidth Digital Copy Protection) coding feature installed.

The TV may not output sound and pictures may be displayed with abnormal color when DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) supporting HDMI versions older than 1.3 are connected. When connecting an older HDMI cable and there is no sound, connect the HDMI cable to the **HDMI IN 1 (DVI)** jack and the audio cables to the **PC/DVI AUDIO IN** jacks on the back of the TV. If this happens, contact the company that provided the DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) to confirm the HDMI version, then request an upgrade.

HDMI cables that are not 1.3 may cause annoying flicker or no screen display.

Connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) via DVI

This connection can only be made if there is a DVI Output connector on the external device.



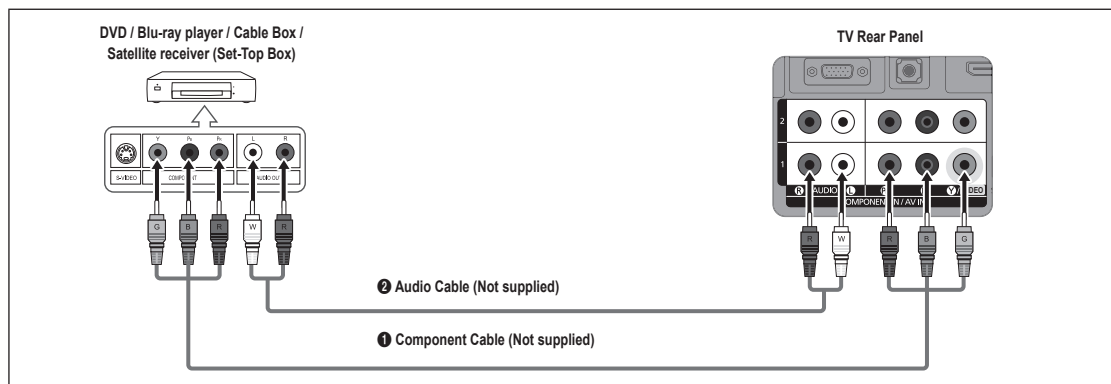
1. Connect a DVI to HDMI Cable or DVI-HDMI Adapter between the **HDMI IN 1 (DVI)** jack on the TV and the DVI jack on the DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box).

2. Connect Audio Cables between the **PC/DVI AUDIO IN** jack on the TV and the DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box).

- Each DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) has a different back panel configuration.
- When connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box), match the color of the connection terminal to the cable.
- Use the **HDMI IN 1 (DVI)** jack for DVI connection to an external device. Use a DVI to HDMI cable or DVI-HDMI adapter (DVI to HDMI) for video connection and the **PC/DVI AUDIO IN** jacks for audio. When using an HDMI / DVI cable connection, you must use the **HDMI IN 1 (DVI)** jack.
- When using an HDMI / DVI cable connection, you must use the **HDMI IN 1 (DVI)** jack.

Connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) via Component cables

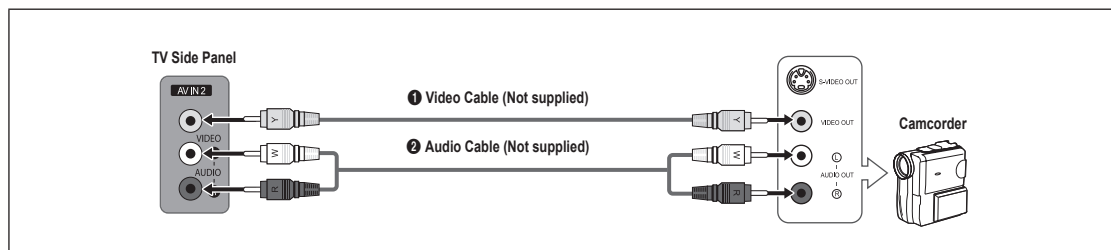
The rear panel jacks on your TV make it easy to connect a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) to your TV.



1. Connect a Component Cable between the **COMPONENT IN (1 or 2)** [Y, Pb, Pr] jacks on the TV and the COMPONENT [Y, Pb, Pr] jacks on the DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box).
2. Connect Audio Cables between the **COMPONENT IN (1 or 2)** [R-AUDIO-L] jacks on the TV and the AUDIO OUT jacks on the DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box).
 - ☑ Component video separates the video into Y (Luminance (brightness)), Pb (Blue) and Pr (Red) for enhanced video quality. Be sure to match the component video and audio connections. For example, if connecting a Component video cable to **COMPONENT IN 1**, connect the audio cable to **COMPONENT IN 1** also.
 - ☑ Each DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box) has a different back panel configuration.
 - ☑ When connecting a DVD / Blu-ray player / Cable Box / Satellite receiver (Set-Top Box), match the color of the connection terminal to the cable.

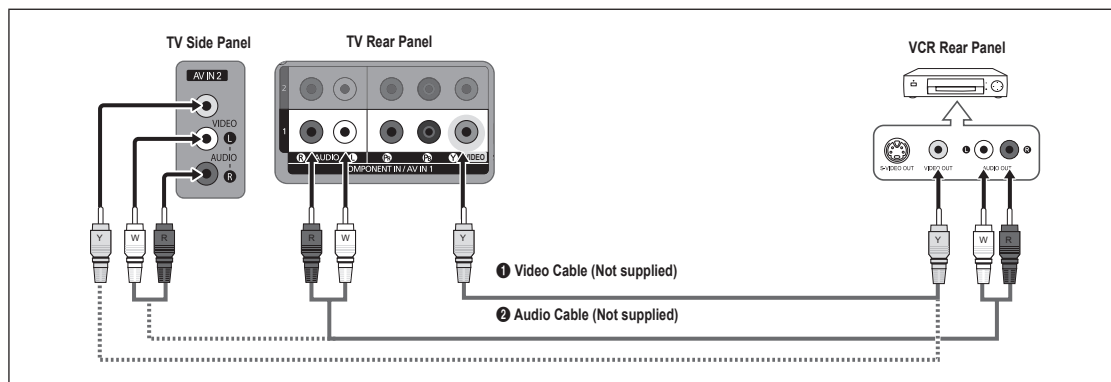
Connecting a Camcorder

The side panel jacks on your TV make it easy to connect a camcorder to your TV. They allow you to view the camcorder tapes without using a VCR.



1. Connect a Video Cable between the **AV IN 2 [VIDEO]** jack on the TV and the VIDEO OUT jack on the camcorder.
2. Connect Audio Cables between the **AV IN 2 [R-AUDIO-L]** jacks on the TV and the AUDIO OUT jacks on the camcorder.
 - ☑ Each Camcorder has a different back panel configuration.
 - ☑ When connecting a Camcorder, match the color of the connection terminal to the cable.

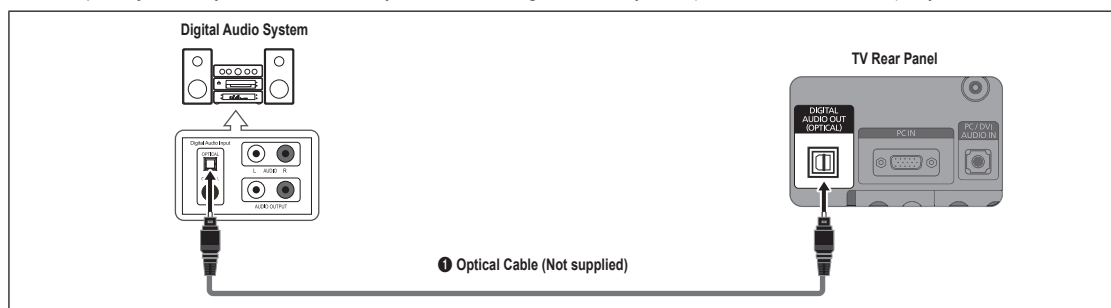
Connecting a VCR



1. Connect a Video Cable between the **AV IN 1 [Y/VIDEO]** or **AV IN 2 [VIDEO]** jack on the TV and the **VIDEO OUT** jack on the VCR.
2. Connect Audio Cables between the **AV IN (1 or 2) [R-AUDIO-L]** jacks on the TV and the **AUDIO OUT** jacks on the VCR.
 - ☑ If you have a 'mono' (non-stereo) VCR, use a Y-connector (not supplied) to connect to the right and left audio input jacks of the TV. Alternatively, connect the cable to the 'R' jack. If your VCR is stereo, you must connect two cables.
 - ☑ Each VCR has a different back panel configuration.
 - ☑ When connecting a VCR, match the color of the connection terminal to the cable.
 - ☑ When connecting to **AV IN 1**, the color of the **AV IN 1 [Y/VIDEO]** jack (Green) does not match the color of the video cable (Yellow).

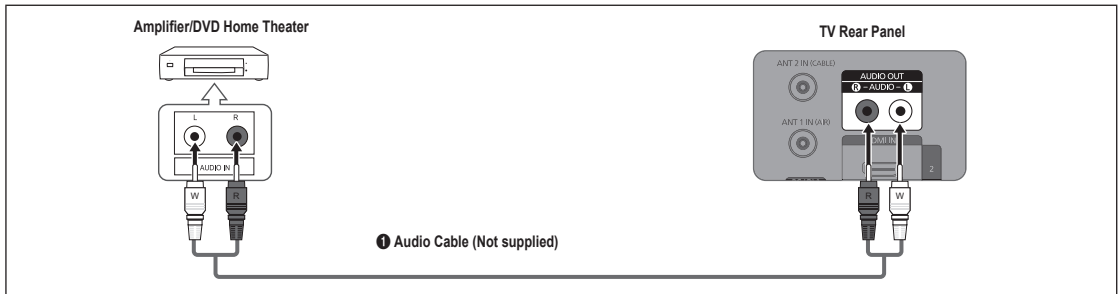
Connecting a Digital Audio System

The rear panel jacks on your TV make it easy to connect a Digital Audio System (Home theater/Receiver) to your TV.



1. Connect an Optical Cable between the **DIGITAL AUDIO OUT (OPTICAL)** jacks on the TV and the Digital Audio Input jacks on the Digital Audio System.
 - ☑ When a Digital Audio System is connected to the **DIGITAL AUDIO OUT (OPTICAL)** jack: Decrease the volume of the TV and adjust the volume level with the system's volume control.
 - ☑ 5.1CH audio is possible when the TV is connected to an external device supporting 5.1CH.
 - ☑ When the Home Theater receiver is set to On, you can hear sound output from the TV's Optical jack. When the TV is displaying a DTV(air) signal, the TV will send out 5.1 channel sound to the Home theater receiver. When the source is a digital component such as a DVD / Blu-ray player / Cable Box / Satellite receiver (Set- Top Box) and is connected to the TV via HDMI, only 2 channel sound will be heard from the Home Theater receiver. If you want to hear 5.1 channel audio, connect the digital audio out jack on DVD / Blu-ray player / Cable Box / Satellite receiver (Set- Top Box) directly to an Amplifier or Home Theater, not the TV.

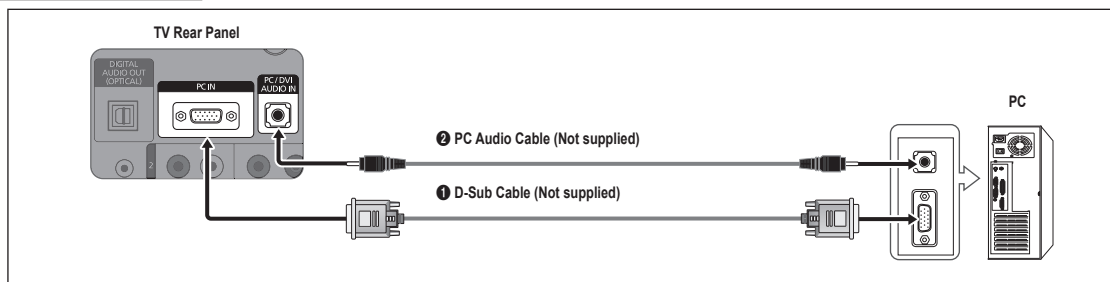
Connecting an Amplifier/DVD Home Theater



1. Connect Audio Cables between the **AUDIO OUT [R-AUDIO-L]** jacks on the TV and Audio Input jacks on the Amplifier / DVD Home Theater.
 - ☞ When an audio amplifier is connected to the **AUDIO OUT [R-AUDIO-L]** jacks: Decrease the volume of the TV and adjust the volume level with the Amplifier's volume control.
 - ☞ Each Amplifier/DVD Home Theater has a different back panel configuration.
 - ☞ When connecting an Amplifier/DVD Home Theater, match the color of the connection terminal to the cable.

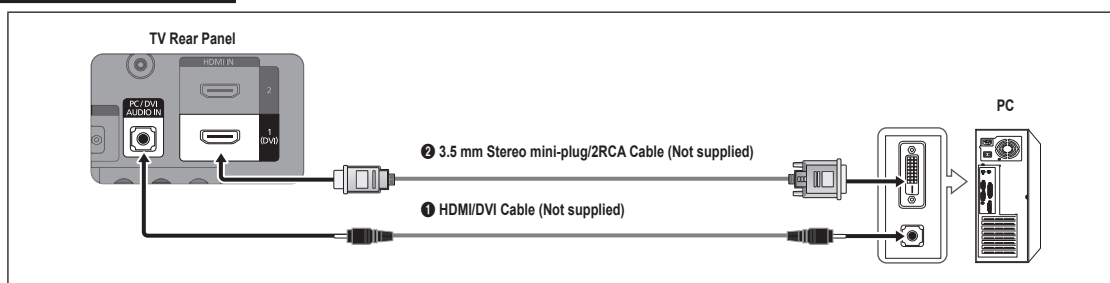
Connecting a PC

Using the D-Sub Cable



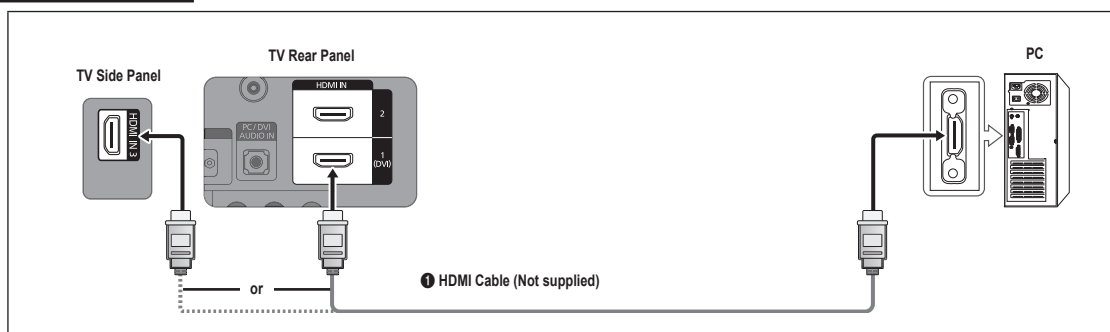
1. Connect a D-Sub Cable between **PC IN** connector on the TV and the PC output connector on your computer.
 2. Connect a PC Audio Cable between the **PC/DVI AUDIO IN** jack on the TV and the Audio Out jack of the sound card on your computer.
- 📌 When connecting a PC, match the color of the connection terminal to the cable.

Using the HDMI/DVI Cable



1. Connect an HDMI/DVI cable between the **HDMI IN 1 (DVI)** jack on the TV and the PC output jack on your computer.
 2. Connect a 3.5 mm Stereo miniplug / 2RCA Cable between the **PC/DVI AUDIO IN** jack on the TV and the Audio Out jack of the sound card on your computer.
- 📌 When using an HDMI/DVI cable connection, you must use the **HDMI IN 1 (DVI)** terminal.

Using the HDMI Cable

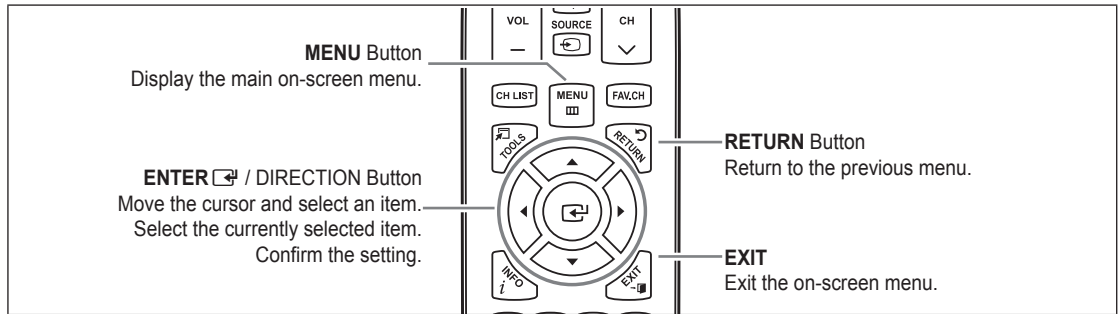


1. Connect an HDMI cable between the **HDMI IN 2, 3** or **HDMI IN 1 (DVI)** jack on the TV and the PC output jack on your computer.
- 📌 Each PC has a different back panel configuration.

OPERATION



Viewing the menus

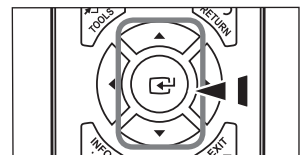
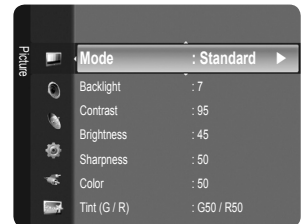
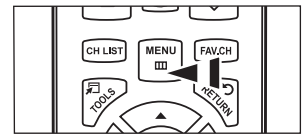
Before using the TV, follow the steps below to learn how to navigate the menu in order to select and adjust different functions.



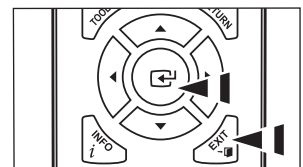
Operation the OSD (On Screen Display)

The access step may differ depending on the selected menu.

1. Press the **MENU** button.
2. The main menu appears on the screen. The menu's left side has icons : **Picture, Sound, Channel, Setup, Input, Application, Support**.
3. Press the **▲** or **▼** button to select one of the icons.
4. Then press the **ENTER ** button to access the icon's sub-menu.
5. Press the **▲** or **▼** button to select the icon's sub-menu.
6. Press the **◀** or **▶** button to decrease or increase the value of a particular item. The adjustment OSD may differ depending on the selected menu.
7. Press the **ENTER ** button to complete the configuration. Press the **EXIT** button to exit.







Help icon



























Placing Your Television in Standby Mode

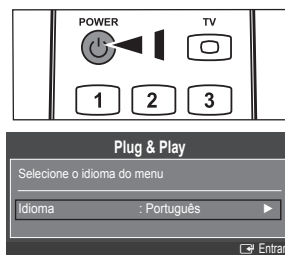
Your set can be placed in standby mode in order to reduce the power consumption. The standby mode can be useful when you wish to interrupt viewing temporarily (during a meal, for example).

1. Press the **POWER**  button on the remote control.
 -  The screen is turned off and a red standby indicator appears on your set.
2. To switch your set back on, simply press the **POWER**  button again.
 -  Do not leave your set in standby mode for long periods of time (when you are away on holiday, for example). It is best to unplug the set from the mains and aerial.





Plug & Play Feature

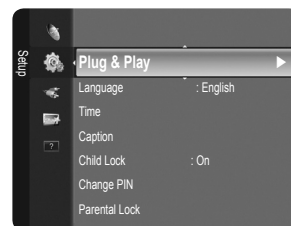
When the TV is initially powered on, basic settings proceed automatically and subsequently.

1. Press the **POWER**  button on the remote control.
 -  You can also use the **POWER**  button on the TV.
 -  The message **Selecione o idioma do menu** is displayed.
2. Press the **ENTER**  button. Press the **▲** or **▼** button to select the language, then press the **ENTER**  button. The message **Select 'Home Use' when installing this TV in your home.** is displayed.
3. Press the **◀** or **▶** button to select **Store Demo** or **Home Use**, then press the **ENTER**  button. The message **Select the Antenna source to memorize.** is displayed.
 -  We recommend setting the TV to **Home Use** mode for the best picture in your home environment.
 -  **Store Demo** mode is only intended for use in retail environments.
 -  If the unit is accidentally set to **Store Demo** mode and you want to return to **Home Use** (Standard): Press the volume button on the TV. When the volume OSD is displayed, press and hold the **MENU** button on the TV for 5 seconds.
4. Press the **▲** or **▼** button to memorize the channels of the selected connection. Press the **ENTER**  button to select **Start**.
 -  **Air:** Air antenna signal. / **Cable:** Cable antenna signal. / **Air + Cable:** Air and Cable antenna signals.
 -  If the antenna is connected to **ANT 1 IN (AIR)**, select **Air** and if it is connected to **ANT 2 IN (CABLE)**, select **Cable**.
 -  If both **ANT 1 IN (AIR)** and **ANT 2 IN (CABLE)** are connected, select the **Air + Cable**.
5. Press the **ENTER**  button to select **Start**. The TV will begin memorizing all of the available channels.
 -  To stop the search before it has finished, press the **ENTER**  button with **Stop** selected.
 -  After all the available channels are stored, it starts to remove scrambled channels. The Auto program menu then reappears. Press the **ENTER**  button when channel memorization is complete. The message **Set the Clock Mode.** is displayed.
6. Press the **ENTER**  button. Press the **▲** or **▼** button to select **Auto**, then Press the **ENTER**  button. The message **Select the time zone in which you live.** is displayed. If you select **Manual**, **Set current date and time.** is displayed.
7. Press the **▲** or **▼** button to highlight the time zone for your local area. Press the **ENTER**  button. If you have received a digital signal, the time will be set automatically. If not, select **Manual** to set the clock. (refer to page 27)
8. The connection method to provide the best quality HD is offered. After confirming the method, press the **ENTER**  button.
9. The message **Enjoy your viewing** is displayed. When you have finished, press the **ENTER**  button.



If you want to reset this feature...

1. Press the **MENU** button to display the menu. Press the **▲** or **▼** button to select **Setup**, then press the **ENTER**  button.
2. Press the **ENTER**  button again to select **Plug & Play**.
 -  The **Plug & Play** feature is only available in the TV mode.
 -  If a channel is locked using the **Child Lock** function, the PIN input window appears. (refer to page 28)



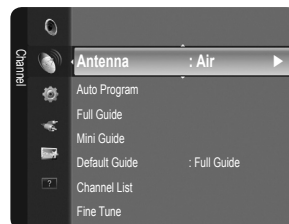
CHANNEL

Channel Menu

❑ Antenna → Air / Cable

Before your television can begin memorizing the available channels, you must specify the type of signal source that is connected to the TV (i.e. an Air or a Cable system).

- ☑ Press the **TOOLS** button to display the **Tools** menu. You can also set the Antenna by selecting **Tools** → **Switch to Cable** (or **Switch to Air**).
- ☑ If the antenna is connected to **ANT 1 IN (AIR)**, select **Air** and if it is connected to **ANT 2 IN (CABLE)**, select **Cable**.
- ☑ If both **ANT 1 IN (AIR)** and **ANT 2 IN (CABLE)** are connected, select the antenna input you want.
- ☑ If the antenna input is not selected properly, noise may appear on the screen.



❑ Auto Program

■ Air: Air antenna signal. / Cable: Cable antenna signal. / Air+Cable: Air and Cable antenna signals

- ☑ If the antenna is connected to **ANT 1 IN (AIR)**, select **Air** and if it is connected to **ANT 2 IN (CABLE)**, select **Cable**.
- ☑ If both **ANT 1 IN (AIR)** and **ANT 2 IN (CABLE)** are connected, select the **Air+Cable**.
- ☑ If you want to stop Auto Programming, press the **ENTER** button. The **Stop Auto Program?** message will be displayed. Select **Yes** by pressing the ◀ or ▶ button, then press the **ENTER** button.

❑ Full Guide / Mini Guide

The EPG (Electronic Programme Guide) information is provided by the broadcasters. Programme entries may appear blank or out of date as a result of the information broadcast on a given channel. The display will dynamically update as soon as new information becomes available.

- ☑ You can also display the guide menu simply by pressing the **GUIDE** button. (To configure the **Default Guide**, refer to the descriptions.)

■ Full Guide

Displays the programme information as time ordered One hour segments. Two hours of programme information is displayed which may be scrolled forwards or backwards in time.

■ Mini Guide

The information of each programme is displayed by each line on the current channel Mini Guide screen from the current programme onwards according to the programme starting time order.

❑ Default Guide → Mini Guide / Full Guide

You can decide whether to display either the **Mini Guide** or the **Full Guide** when the **GUIDE** button on the remote control is pressed.

❑ Channel List

For detailed procedures on using the **Channel List**, refer to the 'Managing Channels' instructions. (refer to pages 17~18)

- ☑ You can select these options by simply pressing the **CH LIST** button on the remote control.

❑ Fine Tune (analog channels only)

Use fine tuning to manually adjust a particular channel for optimal reception.

- ☑ If you do not store the fine-tuned channel in memory, adjustments are not saved.
- ☑ "*" will appear next to the name of fine-tuned channels.
- ☑ To reset the fine tuning setting, press the ▼ button to select **Reset**, then press the **ENTER** button.

❑ LNA (Low Noise Amplifier) → On / Off

If the TV is operating in a weak-signal area, the LNA function can improve the reception (a low-noise preamplifier boosts the incoming signal).

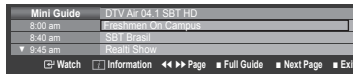
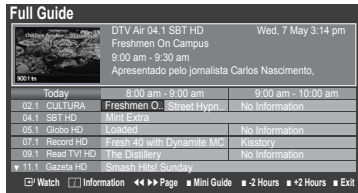
- ☑ LNA functions only when antenna is set to **Air** or **Cable**.
- ☑ The LNA setting must be made separately for each channel.
- ☑ If the picture is noisy with the LNA set to **On**, select **Off**.


Color System → **Auto / PAL-M / PAL-N / NTSC**

Selects a color system suitable for the input video signals.

This function is available only in analog TV mode.

Using the Full / Mini Guide



To...	Then...
Watch a programme in the EPG list	Select a programme by pressing the ▲, ▼, ◀, ▶ button.
Exit the guide	Press the blue button
If the next programme is selected, it is scheduled with the clock icon displayed. If the ENTER  button is pressed again, press the ◀, ▶ button to select Cancel Schedules , the scheduling is cancelled with the clock icon gone.	
View programme information	Select a programme of your choice by pressing the ▲, ▼, ◀, ▶ button. Then press the INFO button when the programme of your choice is highlighted. The programme title is on the upper part of the screen center.
Please click on INFO button for the detailed information. Channel Number, Running Time, Status Bar, Parental Level, Video Quality Information (HD / SD), Sound Modes, Subtitle or Teletext, languages of Subtitle or Teletext and brief summary of the highlighted programme are included on the detailed information. "... " will be appeared if the summary is long.	
Toggle between the Mini Guide and Full Guide	Press the Red button repeatedly.
In Full Guide Scrolls backwards quickly (24 hours). Scrolls forwards quickly (24 hours).	Press the Green button repeatedly. Press the Yellow button repeatedly.
In Mini Guide Display previous page quickly. Display next page quickly.	Press the Green button. Press the Yellow button.

Managing Channels

Using this menu, you can add / delete or set favorite channels and use the program guide for digital broadcasts.

All Channels

Shows all currently available channels.

Added Channels

Shows all added channels.

Favorite

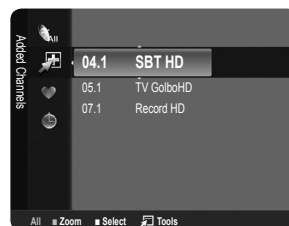
Shows all favorite channels.

To select the favorite channels you have set up, press the **FAV.CH** button on the remote control.

Programmed

Shows all current reserved programs.

- ☑ Select a channel in the **All Channels**, **Added Channels** or **Favorite** screen by pressing the ▲ / ▼ buttons, and pressing the **ENTER** button. Then you can watch the selected channel.
- ☑ Using the Color buttons with the Channel List
 - Green (**Zoom**): Enlarges or shrinks a channel number.
 - Yellow (**Select**): Selects multiple channel lists. You can perform the add/delete or add to Favorite/delete from Favorite function for multiple channels at the same time. Select the required channels and press the Yellow button to set all the selected channels at the same time. The ✓ mark appears to the left of the selected channels.
 - **TOOLS (Tools)**: Displays the **Add (or Delete)**, **Add to Favorite (or Delete from Favorite)**, **Lock (or Unlock)**, **Timer Viewing**, **Channel Name Edit**, **Select All (or Deselect All)** and **Auto Program** menus (The Options menus may differ depending on the situation.)
- ☑ Channel Status Display Icons
 - ✓ : A channel selected by pressing the Yellow button.
 - 📺 : A program currently being broadcast.
 - ❤️ : A channel set as a Favorite.
 - ⌚ : A reserved program.
 - 🔒 : A locked channel.



Channel List Option Menu (in All Channels / Added Channels / Favorite)

- ☑ Press the **TOOLS** button to use the option menu.
- ☑ Option menu items may differ depending on the channel status.

Add / Delete

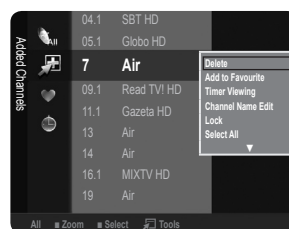
You can delete or add a channel to display the channels you want.

- ☑ All deleted channels will be shown on **All Channels** menu.
- ☑ A gray-colored channel indicates the channel has been deleted.
- ☑ The **Add** menu only appears for deleted channels.
- ☑ You can also delete a channel from the **Added Channels** or **Favorite** menu in the same manner.

Add to Favorite / Delete from Favorite

You can set channels you watch frequently as Favorite.

- ☑ Press the **TOOLS** button to display the **Tools** menu. You can also set the add to (or delete from) Favorites by selecting **Tools** → **Add to Favorite (or Delete from Favorite)**.
- ☑ The '❤️' symbol will be displayed and the channel will be set as a favorite.
- ☑ All favorite channels will be shown on **Favorite** menu.



■ Lock / Unlock

You can lock a channel so that the channel cannot be selected and viewed.

✎ Press the **TOOLS** button to display the **Tools** menu. You can also set the lock (unlock) current channels by selecting **Tools** → **Lock Current Channel** (or **Unlock Current Channel**).

- ✎ This function is available only when the **Child Lock** is set to **On**. (refer to page 28)
- ✎ The PIN number input screen appears. Enter your 4 digit PIN number.
- ✎ The default PIN number of a new TV set is '0-0-0-0'. You can change the PIN, by
- ✎ selecting **Change PIN** from the menu.
- ✎ The '🔒' symbol will be displayed and the channel will be locked.

■ Timer Viewing

If you reserve a program you want to watch, the channel is automatically switched to the reserved channel in the Channel List; even when you are watching another channel. To reserve a program, set the current time first. (refer to page 27)

- ✎ Only memorized channels can be reserved.
- ✎ You can set the channel, day, month, year, hour and minute directly by pressing the number buttons on the remote control.
- ✎ Reserving a program will be shown in the **Programmed** menu.
- ✎ Digital Program Guide and Viewing Reservation
When a digital channel is selected, and you press the ► button, the Program Guide for the channel appears. You can reserve a program according to the procedures described above.

■ Channel Name Edit (analog channels only)

Channels can be labeled so that their call letters appear whenever the channel is selected.

- ✎ The names of digital broadcasting channels are automatically assigned and cannot be labeled.

■ Select All / Deselect All

- **Select All**: You can select all the channels in the channel list.

- **Deselect All**: You can deselect all the selected channels.

- ✎ You can only select **Deselect All** when there is a selected channel.

■ Auto Program

- ✎ For detailed procedures on using the **Auto Program**. (refer to page 15)

Channel List Option Menu (in Programmed)

You can view, modify or delete a reservation.

- ✎ Press the **TOOLS** button to use the option menu.

■ Change Info

Select to change a viewing reservation.

■ Cancel Schedules

Select to cancel a viewing reservation.

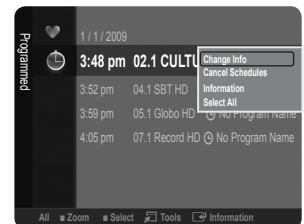
■ Information

Select to view a viewing reservation.

(You can also change the reservation information.)

■ Select All

Select all reserved program.



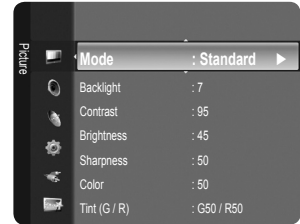
PICTURE

Picture Menu

□ Mode

You can select the type of picture which best corresponds to your viewing requirements.

✎ Press the **TOOLS** button to display the **Tools** menu. You can also set the picture mode by selecting **Tools** → **Picture Mode**.



■ Dynamic

Selects the picture for increased definition in a bright room.

■ Standard

Selects the picture for the optimum display in a normal environment.

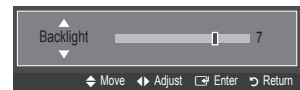
■ Movie

Selects the picture for viewing movies in a dark room.

□ Backlight / Contrast / Brightness / Sharpness / Color / Tint(G/R)

Your television has several setting options that allow you to control the picture quality.

- **Backlight:** Adjusts the brightness of LCD back light.
- **Contrast:** Adjusts the contrast level of the picture.
- **Brightness:** Adjusts the brightness level of the picture
- **Sharpness:** Adjusts the edge definition of the picture.
- **Color:** Adjusts color saturation of the picture.
- **Tint(G/R):** Adjusts the color tint of the picture.



- ☑ When you make changes to **Backlight, Contrast, Brightness, Sharpness, Color** or **Tint(G/R)** the OSD will be adjusted accordingly.
- ☑ In PC mode, you can only make changes to **Backlight, Contrast** and **Brightness**.
- ☑ Settings can be adjusted and stored for each external device you have connected to an input of the TV.
- ☑ The energy consumed during use can be significantly reduced if the brightness level of the picture is lowered, which will reduce the overall running cost.

□ Advanced Settings

Samsung's new TVs allow you to make even more precise picture settings than previous models.

- ☑ **Advanced Settings** is available in **Standard** or **Movie** mode.
- ☑ In PC mode, you can only make changes to **Gamma** and **White Balance** from among the **Advanced Settings** items.

■ Black Tone → Off / Dark / Darker / Darkest

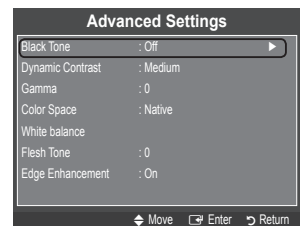
You can select the black level on the screen to adjust the screen depth.

■ Dynamic Contrast → Off / Low / Medium / High

You can adjust the screen contrast so that the optimal contrast is provided.

■ Gamma

You can adjust the primary color (red, green, blue) intensity.



■ Color Space

Color space is a color matrix composed of red, green and blue colors. Select your favorite color space to experience the most natural color.

- **Auto:** Auto Color Space automatically adjusts to the most natural color tone based on program sources.
- **Native:** Native Color Space offers deep and rich color tone.

■ White Balance

You can adjust the color temperature for more natural picture colors.

- **R-Offset:** Adjusts the red color darkness.
- **G-Offset:** Adjusts the green color darkness.
- **B-Offset:** Adjusts the blue color darkness.
- **R-Gain:** Adjusts the red color brightness.
- **G-Gain:** Adjusts the green color brightness.
- **B-Gain:** Adjusts the blue color brightness.
- **Reset:** The previously adjusted white balance will be reset to the factory defaults.

■ Flesh Tone

You can emphasize the pink 'flesh tone' in the picture.

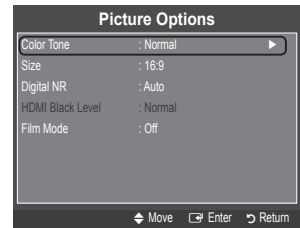
- Changing the adjustment value will refresh the adjusted screen.

■ Edge Enhancement → Off / On

You can emphasize object boundaries in the picture.

Picture Options

- In PC mode, you can only make changes to the **Color Tone** and **Size** from among the items in Picture Options.



Color Tone → Cool / Normal / Warm1 / Warm2

- Warm1** or **Warm2** is only activated when the picture mode is **Movie**.
- Settings can be adjusted and stored for each external device you have connected to an input of the TV.

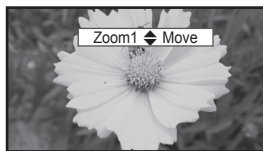
Size

Occasionally, you may want to change the size of the image on your screen. Your TV comes with several screen size options, each designed to work best with specific types of video input. Your cable box/satellite receiver may have its own set of screen sizes as well. In general, though, you should view the TV in 16:9 mode as much as possible.

- Alternately, you can press the **P.SIZE** button on the remote control repeatedly to change the picture size.
 - 16:9** : Sets the picture to 16:9 wide mode.
 - Zoom1**: Magnifies the size of the picture on the screen.
 - Zoom2**: Magnifies the size of the picture more than **Zoom1**.
 - Wide Fit**: Enlarges the aspect ratio of the picture to fit the entire screen.
 - 4:3** : Sets the picture to 4:3 normal mode.
 - Screen Fit**: Use the function to see the full image without any cut-off when HDMI (720p/1080i), Component (1080i) or DTV (1080i) signals are input.



16:9



Zoom1



Zoom2



Wide Fit



4:3



Screen Fit

- Temporary image retention may occur when viewing a static image on the set for more than two hours.
- After selecting **Zoom1**, **Zoom2** or **Wide Fit**: Press the **►** button to Select **Position**, then press the **ENTER** button. Press the **▲** or **▼** button to move the picture up and down. Then press the **ENTER** button. Press the **►** button to Select **Size**, then press the **ENTER** button. Press the **▲** or **▼** button to magnify or reduce the picture size in the vertical direction. Then press the **ENTER** button.
- After selecting **Screen Fit** in HDMI (1080i) or Component (1080i) mode, you may need to center the picture: Press the **◀** or **▶** button to select **Position**, then press the **ENTER** button. Press the **▲**, **▼**, **◀** or **▶** button to move the picture.
 - Reset**: Press the **◀** or **▶** button to select **Reset**, then press the **ENTER** button. You can initialize the setting.
- Settings can be adjusted and stored for each external device you have connected to an input of the TV.

Input Source	Picture Size
ATV, AV, Component (480i, 480p)	16:9, Zoom1, Zoom2, 4:3
DTV(1080i), Component (1080i), HDMI (720p, 1080i)	16:9, 4:3, Wide Fit, Screen Fit
PC	16:9, 4:3

■ **Digital NR** → **Off / Low / Medium / High / Auto**

If the broadcast signal received by your TV is weak, you can activate the Digital Noise Reduction feature to help reduce any static and ghosting that may appear on the screen.

When the signal is weak, select one of the other options until the best picture is displayed.

■ **HDMI Black Level** → **Normal / Low**

You can select the black level on the screen to adjust the screen depth.

This function is active only when an external device is connected to the TV via HDMI. The HDMI **HDMI Black Level** function may not be compatible with all external devices.

■ **Film Mode** → **Off / Auto**

The TV can be set to automatically sense and process film signals from all sources and adjust the picture for optimum quality.

Film mode is supported in TV, Video, Component (480i / 1080i) and HDMI (480i / 1080i).

□ **Picture Reset** → **Reset Picture Mode / Cancel**

Resets all picture settings to the default values.

Reset Picture Mode: Current picture values return to default settings.

Setting Up Your PC Software (Based on Windows XP)

The Windows display-settings for a typical computer are shown below. The actual screens on your PC will probably be different, depending upon your particular version of Windows and your particular video card. However, even if your actual screens look different, the same basic set-up information will apply in almost all cases. (If not, contact your computer manufacturer or Samsung Dealer.)

1. First, click on 'Control Panel' on the Windows start menu.
2. When the control panel window appears, click on 'Appearance and Themes' and a display dialog-box will appear.
3. When the control panel window appears, click on 'Display' and a display dialog-box will appear.
4. Navigate to the 'Settings' tab on the display dialog-box.
 - The correct size setting (resolution) - Optimum: 1360 X 768 pixels
 - If a vertical frequency option exists on your display settings dialog box, the correct value is '60' or '60 Hz'. Otherwise, just click 'OK' and exit the dialog box.



Display Modes

If the signal from the system equals the standard signal mode, the screen is adjusted automatically. If the signal from the system doesn't equal the standard signal mode, adjust the mode by referring to your videocard user guide; otherwise there may be no video. For the display modes listed on the next page, the screen image has been optimized during manufacturing.

■ D-Sub and HDMI/DVI Input

- When using an HDMI/DVI cable connection, you must use the **HDMI IN 1(DVI)** jack.


Mode	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)	Sync Polarity (H / V)
IBM	640 x 350	31.469	70.086	25.175	+/-
	720 x 400	31.469	70.087	28.322	-/+
MAC	640 x 480	35.000	66.667	30.240	-/-
	832 x 624	49.726	74.551	57.284	-/-
VESA CVT	720 x 576	35.910	59.950	32.750	-/+
	1280 x 720	44.772	59.855	74.500	-/+
	1280 x 720	56.456	74.777	95.750	-/+
VESA DMT	640 x 480	31.469	59.940	25.175	-/-
	640 x 480	37.500	75.000	31.500	-/-
	640 x 480	37.861	72.809	31.500	-/-
	800 x 600	37.879	60.317	40.000	+/+
	800 x 600	46.875	75.000	49.500	+/+
	800 x 600	48.077	72.188	50.000	+/+
	1024 x 768	48.363	60.004	65.000	-/-
	1024 x 768	56.476	70.069	75.000	-/-
	1024 x 768	60.023	75.029	78.750	+/+
	1360 x 768	47.712	60.015	85.500	+/+
VESA GTF	1280 x 720	52.500	70.000	89.040	-/+


Setting up the TV with your PC

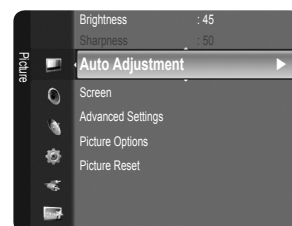
 Preset: Press the **SOURCE** button to select PC mode.

Auto Adjustment

Use the Auto Adjust function to have the TV automatically adjust the video signals it receives. The function also automatically fine-tunes the settings and adjusts the frequency values and positions.

 Press the **TOOLS** button to display the **Tools** menu. You can also set the Auto Adjustment by selecting **Tools** → **Auto Adjustment**.

 This function does not work in DVI-Digital mode.



Screen

Coarse / Fine

The purpose of picture quality adjustment is to remove or reduce picture noise. If the noise is not removed by Fine-tuning alone, then adjust the frequency as best as possible (**Coarse**) and Fine-tune again. After the noise has been reduced, readjust the picture so that it is aligned on the center of screen.

PC Position

Adjust the PC's screen positioning if it does not fit the TV screen. Press the **▲** or **▼** button to adjusting the Vertical-Position. Press the **◀** or **▶** button to adjust the Horizontal-Position.


Image Reset

You can replace all image settings with the factory default values.

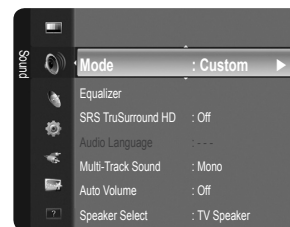
SOUND

Sound Menu

□ Mode → Standard / Music / Movie / Clear Voice / Custom

 Press the **TOOLS** button to display the **Tools** menu. You can also set the sound mode by selecting **Tools** → **Sound Mode**.

- **Standard**: Selects the normal sound mode.
- **Music**: Emphasizes music over voices.
- **Movie**: Provides the best sound for movies.
- **Clear Voice**: Emphasizes voice over other sounds.
- **Custom**: Recalls your customized sound settings.



□ Equalizer

The sound settings can be adjusted to suit your personal preference.


- **Mode**: Selects the sound mode among the predefined settings.
- **Balance L/R**: Adjusts the balance between the right and left speaker.
- **100Hz, 300Hz, 1KHz, 3KHz, 10KHz** (Bandwidth Adjustment): To adjust the level of different bandwidth frequencies.
- **Reset**: Resets the equalizer settings to the default values.



□ SRS TruSurround HD → Off / On

TruSurround HD is a patented SRS technology that solves the problem of playing 5.1 multichannel content over two speakers. TruSurround delivers a compelling, virtual surround sound experience through any two-speaker playback system, including internal television speakers. It is fully compatible with all multichannel formats.


□ Audio Language



You can change the default value for audio languages. Displays the language information for the incoming stream.

 Press the **TOOLS** button to display the **Tools** menu. You can also set the audio language by selecting **Tools** → **Audio Language**.

-  While viewing a digital channel, this function can be selected.
-  You can only select the language among the actual languages being broadcast.

□ Multi-Track Sound (MTS) (analog channels only)

 Press the **TOOLS** button to display the **Tools** menu. You can also set the Multi-Track Sound by selecting **Tools** → **Multi-Track Sound**.

- **Mono**: Choose for channels that are broadcasting in mono or if you are having difficulty receiving a stereo signal.
- **Stereo**: Choose for channels that are broadcasting in stereo.
- **SAP**: Choose to listen to the Separate Audio Program, which is usually a foreign-language translation.
-  **Multi-Track Sound** is available only in Analog TV mode.
-  Depending on the particular program being broadcast, you can listen to **Mono**, **Stereo** or **SAP**.


□ Auto Volume → Off / On

Each broadcasting station has its own signal conditions, and so it is not easy to adjust the volume every time the channel is changed. This feature lets you automatically adjust the volume of the desired channel by lowering the sound output when the modulation signal is high or by raising the sound output when the modulation signal is low.

-  **Auto Volume** is not available in Component and HDMI mode.

□ Speaker Select

When you watch TV with it connecting to a Home theater, turn the TV speakers off so you can listen to sound from the Home theater's (external) speakers.

- **External Speaker**: Used to listen to the sound of the External (Home Theater) Speakers.
- **TV Speaker**: Used to listen to the sound of the TV Speakers.
-  If you select **External Speaker** in the **Speaker Select** menu, the sound settings will be limited.

- ☑ The volume and **MUTE** buttons do not operate when the **Speaker Select** is set to **External Speaker**. Please set the volume on your Home theater.

	TV's Internal Speakers	Audio Out (Optical, L/R Out) to Sound System
	RF, AV, Component, PC, HDMI	RF, AV, Component, PC, HDMI
TV Speaker	Speaker Output	Speaker Output
External Speaker	Mute	Speaker Output
Video No Signal	Mute	Mute

☐ **Sound Reset → Reset All / Reset Sound Mode / Cancel**

You can restore the Sound settings to the factory defaults.

- ☑ **Reset Sound Mode:** Current sound values return to default settings.

Connecting Headphones (Sold separately)

You can connect a set of headphones to your set if you wish to watch a TV program without disturbing other people in the room.

- ☑ Using the sound function is restricted when connecting headphones to the TV.
- ☑ Prolonged use of headphones at a high volume may damage your hearing.
- ☑ You will not hear sound from the speakers when you connect headphones to the TV.
- ☑ The headphone volume and TV volume are adjusted separately.

Setup Menu

□ Language

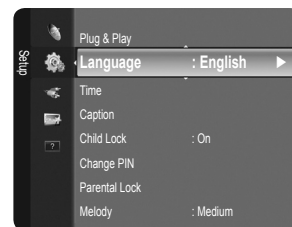
You can set the menu language.

□ Time

■ Clock

Setting the clock is necessary in order to use the various timer features of the TV.

- ☑ The current time will appear every time you press the **INFO** button.
- ☑ If you disconnect the power cord, you have to set the clock again.
- **Clock Mode**
You can set up the current time manually or automatically.
 - **Auto**: Set the current time automatically using the time from the digital broadcast.
 - **Manual**: Set the current time to a manually specified time.
- ☑ Depending on the broadcast station and signal, the auto time may not be set correctly. If this occurs, set the time manually.
- ☑ The Antenna or cable must be connected in order to set the time automatically.
- **Clock Set**
You can set the current time manually.
 - ☑ This function is only available when **Clock Mode** is set to **Manual**.
 - ☑ You can set the month, day, year, hour and minute directly by pressing the number buttons on the remote control.
- **Time Zone**
Select your time zone.
 - ☑ This function is only available when **Clock Mode** is set to **Auto**.



■ Sleep Timer

The sleep timer automatically shuts off the TV after a preset time (30, 60, 90, 120, 150 and 180 minutes).

- ☑ Press the **TOOLS** button to display the **Tools** menu. You can also set the sleep timer by selecting **Tools** → **Sleep Timer**.
- ☑ To cancel the **Sleep Timer** function, select **Off**.

■ Timer 1 / Timer 2 / Timer 3

Three different on / off timer settings can be made. You must set the clock first.

- **On Time**: Set the hour, minute, am/pm, and activate/inactivate. (To activate the timer with the setting you've chosen, set to **Activate**.)
- **Off Time**: Set the hour, minute, am/pm, and activate/inactivate. (To activate the timer with the setting you've chosen, set to **Activate**.)
- **Volume**: Set the desired volume level.
- **Channel**: Select the desired channel.
- **Repeat**: Select **Once**, **Everyday**, **Mon~Fri**, **Mon~Sat**, **Sat~Sun** or **Manual**.
 - ☑ When **Manual** is selected, press the ► button to select the desired day of the week. Press the **ENTER** (↵) button over the desired day and the ✓ mark will appear.
- ☑ You can set the hour, minute and channel by pressing the number buttons on the remote control.
- ☑ **Auto Power Off**
When you set the timer on, the television will eventually turn off, if no controls are operated for 3 hours after the TV was turned on by the timer.
This function is only available in timer on mode and prevents overheating, which may occur if a TV is on for too long time.

□ Caption (On-Screen Text Messages)

■ Caption → Off / On

You can switch the caption function on or off. If captions are not available, they will not be displayed on the screen.

- ☑ Press the **CC** button on the remote control to turn the Caption on or off.
- ☑ The Caption feature doesn't work in Component, HDMI or PC modes.

■ Caption Mode

You can select the desired caption mode.

- ☑ The availability of captions depends on the program being broadcast.
- **Default / CC1~CC4 / Text1~Text4** (analog channels only)
 - The Analog Caption function operates in either analog TV channel mode or when a signal is supplied from an external device to TV. (Depending on the broadcasting signal, the Analog Caption function may operate on digital channels.)

□ Child Lock → Off / On

This feature allows you to prevent unauthorized users, such as children, from watching unsuitable programme by muting out video and audio.

- ☑ Before the setup screen appears, the PIN number input screen appears. Enter your 4 digit PIN number.
- ☑ The default PIN number of a new TV set is '0-0-0-0'. You can change the PIN by selecting **Change PIN** from the menu.
- ☑ You can lock some channels in **Channel List**. (refer to page 18)
- ☑ **Child Lock** is available only in TV mode.

□ Change PIN

You can change your personal ID number that is required to set up the TV.

- ☑ Before the setup screen appears, the PIN number input screen appears. Enter your 4 digit PIN number.
- ☑ The default PIN number of a new TV set is '0-0-0-0'.
- ☑ If you forget the PIN code, press the remote control buttons in the following sequence, which resets the PIN to 0-0-0-0:
POWER (Off), **MUTE**, 8, 2, 4, **POWER** (On).

□ Parental Lock

This feature allows you to prevent unauthorized users, such as children, from watching unsuitable programme by a 4-digit PIN (Personal Identification Number) code that is defined by the user.

- ☑ Before the setup screen appears, the PIN number input screen appears. Enter your 4 digit PIN number.
- ☑ The default PIN number of a new TV set is '0-0-0-0'. You can change the PIN by selecting **Change PIN** from the menu.
- ☑ When the parental ratings are set, the '🔒' symbol is displayed.
- ☑ **Allow All**: Press to unlock all TV ratings.
Block All: Press to lock all TV ratings.

□ Melody → Off / Low / Medium / High

A melody sound can be set to come on when the TV is powered On or Off.

- ☑ The Melody does not play.
 - When no sound is output from the TV because the **MUTE** button has been pressed.
 - When no sound is output from the TV because the volume has been reduced to minimum with the **VOL –** button.
 - When the TV is turned off by Sleep Timer function.

❑ **Game Mode → Off / On**

When connecting to a game console such as PlayStation™ or Xbox™, you can enjoy a more realistic gaming experience by selecting the game menu.

📌 Restrictions on game mode (Caution)

- To disconnect the game console and connect another external device, set **Game Mode** to **Off** in the setup menu.
- If you display the TV menu in **Game Mode**, the screen shakes slightly.

📌 **Game Mode** is not available in regular TV and PC mode.

📌 If the picture is poor when external device is connected to TV, check if **Game Mode** is **On**. Set **Game Mode** to **Off** and connect external devices.

📌 If **Game Mode** is On:

- Picture mode is automatically changed to **Standard** and cannot be changed.
- Sound mode is automatically changed to **Custom** and cannot be changed. Adjust the sound using the equalizer.
- The Reset Sound function is activated. Selecting the Reset function after setting the equalizer resets the equalizer settings to the factory defaults.

❑ **Energy Saving → Off / Low / Medium / High / Auto**

This feature adjusts the brightness of the TV in order to reduce power consumption. When watching TV at night, set the **Energy Saving** mode option to **High** to reduce eye fatigue as well as power consumption.

📌 Press the **TOOLS** button to display the **Tools** menu. You can also set the Energy Saving by selecting **Tools → Energy Saving**.

❑ **AV Color System → Auto / PAL-M / PAL-N / NTSC**

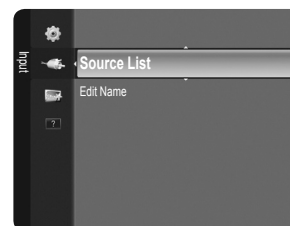
Normally the TV can receive image and sound with good quality when in the mode **Auto**. This mode detects the signal color system automatically. In case of some signal reception with color unsatisfactory, select the **AV Color System** Mode to PAL-M, PAL-N or NTSC.

Input Menu

□ Source List

Use to select TV or other external input sources such as DVD / Blu-ray players / Cable Box / Satellite receivers (Set-Top Box) connected to the TV. Use to select the input source of your choice.

- Press the **SOURCE** button on the remote control to view an external signal source.



■ TV / AV1 / AV2 / Component1 / Component2 / PC / HDMI1/DVI / HDMI2 / HDMI3

- You can choose only those external devices that are connected to the TV. In the **Source List**, connected inputs will be highlighted and sorted to the top. Inputs that are not connected will be sorted to the bottom.
- PC always stays activated
- TOOLS (Tools)**: Displays the **Edit Name** and **Information** menus.

□ Edit Name

■ VCR / DVD / Cable STB / Satellite STB / PVR STB / AV Receiver / Game / Camcorder / PC / DVI / DVI PC / TV / IPTV / Blu-ray / HD DVD / DMA

Name the device connected to the input jacks to make your input source selection easier.

- When a PC with a resolution of 1360 x 768@60Hz is connected to the **HDMI IN 1(DVI)** port, you should set the **HDMI1/DVI** mode to **DVI PC** in the **Edit Name** of the **Input** mode.
- When connecting an HDMI/DVI cable to the **HDMI IN 1(DVI)** port, you should set the **HDMI1/DVI** mode to **DVI** or **DVI PC** in the **Edit Name** of the Input mode. In this case, a separate sound connection is required.

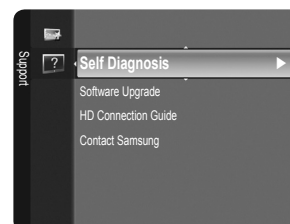
Support Menu

□ Self Diagnosis

■ Picture Test

If you think you have a picture problem, perform the picture test. Check the color pattern on the screen to see if the problem still exists.

- Yes**: If the test pattern does not appear or there is noise in the test pattern, select **Yes**. There may be a problem with the TV. Contact Samsung's call center for assistance.
- No**: If the test pattern is properly displayed, select **No**. There may be a problem with your external equipment. Please check your connections. If the problem still persists, refer to the external device's user manual.



■ Sound Test

If you think you have a sound problem, please perform the sound test. You can check the sound by playing a built-in melody sound through the TV.

- If you hear no sound from the TV's speakers, before performing the sound test, make sure **Speaker Select** is set to **TV speaker** in the Sound menu.
- The melody will be heard during the test even if **Speaker Select** is set to **External Speaker** or the sound is muted by pressing the **MUTE** button.
- Yes**: If during the sound test you can hear sound only from one speaker or not at all, select **Yes**. There may be a problem with the TV. Contact Samsung's call center for assistance.
- No**: If you can hear sound from the speakers, select **No**. There may be a problem with your external equipment. Please check your connections. If the problem still persists, refer to the external device's user manual.

■ Signal Strength (digital channels only)

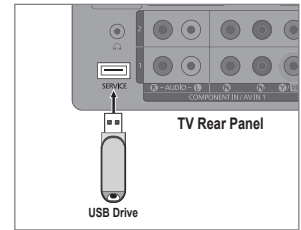
Unlike analog channels, which can vary in reception quality from 'snowy' to clear, digital (HDTV) channels have either perfect reception quality or you will not receive them at all. So, unlike analog channels, you cannot fine tune a digital channel. You can, however, adjust your antenna to improve the reception of available digital channels.

- If the signal strength meter indicates that the signal is weak, physically adjust your antenna to increase the signal strength. Continue to adjust the antenna until you find the best position with the strongest signal.

❑ Software Upgrade

Samsung may offer upgrades for TV's firmware in the future. Please visit Samsung.com or contact the Samsung call center at 1-800-SAMSUNG (726-7864) to receive information about downloading upgrades and using a USB drive. Upgrades will be possible by connecting a USB drive to the USB port located on your TV.

- ☑ Insert a USB drive containing the firmware upgrade into the **USB** port on the side of the TV.
- ☑ Please be careful to not disconnect the power or remove the USB drive while upgrades are being applied. The TV will turn off and turn on automatically after completing the firmware upgrade. Please check the firmware version after the upgrades are complete. When software is upgraded, video and audio settings you have made will return to their default (factory) settings. We recommend you write down your settings so that you can easily reset them after the upgrade.



❑ HD Connection Guide

This menu presents the connection method that provides the optimal quality for the HD TV. Refer to this information when connecting external devices to the TV.

❑ Contact Samsung

View this information when your TV does not work properly or when you want to upgrade the software. You can view the information regarding the call center, product and software file download method.

APPENDIX

Troubleshooting

If the TV seems to have a problem, first try this list of possible problems and solutions. If none of these troubleshooting tips apply, call Samsung customer service at.

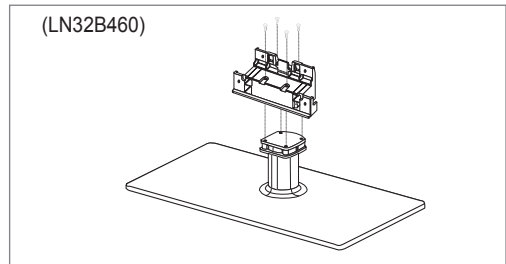
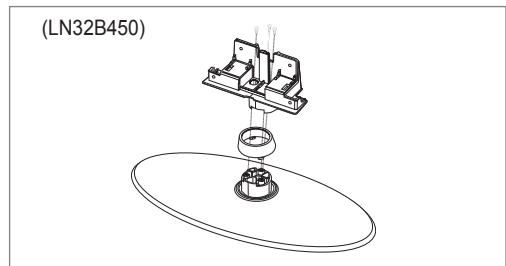
Problem	Possible Solution
Poor picture.	Try another channel. / Adjust the antenna. / Check all wire connections.
Poor sound quality.	Try another channel. / Adjust the antenna.
No picture or sound.	Try another channel. / Press the SOURCE button. Make sure the TV is plugged in. / Check the antenna connections.
No sound or sound is too low at maximum volume.	First, check the volume of units connected to your TV (digital broadcasting receiver, DVD, cable broadcasting receiver, VCR, etc.). Then, adjust the TV volume accordingly. Check the Speaker Select settings.
Picture rolls vertically.	Check all wire connections.
There is a problem with the picture	Run the Picture test in the Self diagnostic menu.
There is a problem with the sound	Run the Sound test in the Self diagnostic menu.
The TV operates erratically.	Unplug the TV for 30 seconds, then try operating it again.
The TV won't turn on.	Make sure the wall outlet is working.
Remote control malfunctions.	Replace the remote control batteries. Clean the upper edge of the remote control (transmission window). Check the battery terminals.
'Check signal cable' message.	Ensure that the signal cable is firmly connected to the PC source.
'Not Supported Mode' message.	Check the maximum resolution and connected device's Video frequency. Compare these values with the data in the Display Modes.
Digital broadcasting screen problem.	Please check the digital signal strength and input antenna.
The image is too light or too dark.	Adjust the Brightness and Contrast. / Adjust the Fine tuning.
Black bars on the screen.	Make sure the broadcast you're receiving is High Definition (HD). HD channels sometimes broadcast Standard Definition (SD) programming, which can cause black bars. Set your cable/satellite box to stretch or widescreen mode to eliminate the bars.
Picture has a Red/Green or Pink tint.	Make sure the Component cables are connected to the correct jacks.
Closed Captioning not working.	If you are using a Cable/Satellite box, you must set Closed Captioning on the box, not your TV.
Snowy picture.	Your cable box may need a firmware upgrade. Please contact your Cable company.
Ghosting on picture.	This is sometimes caused by compatibility issues with your cable box. Try connecting Component cables instead.
Horizontal bars appear to flicker, jitter or shimmer on the image.	Adjust the Coarse tuning and then adjust the Fine tuning.
Vertical bars appear to flicker, jitter or shimmer on the image.	Adjust the Coarse tuning and then adjust the Fine tuning.
Screen is black and power indicator light blinks steadily.	On your computer check: Power, Signal Cable. The TV is using its power management system. Move the computer's mouse or press any key on the keyboard.
Image is not stable and may appear to vibrate when you have a computer connected to the PC input.	If the setting is not correct, use your computer utility program to change the display settings. Your TV supports multiscan display functions within the following frequency domain: - Horizontal frequency (kHz): 30~60 - Vertical frequency (Hz): 60~75 - PC Maximum refresh rate (at 60 Hz): 1360 x 768
Image is not centered on the screen.	Adjust the horizontal and vertical position. The screen position must be adjusted on the output source (i.e. STB) with a digital signal.

Problem	Possible Solution
The picture appears distorted in the corner of the screen.	If Screen Fit When is selected with some external devices, the picture may appear distorted in the corner of the screen. This symptom is caused by the external devices, not TV.
The 'Resets all settings to the default values.' message appears.	This appears when you press and hold the EXIT button for a while. The product settings are reset to the factory defaults.

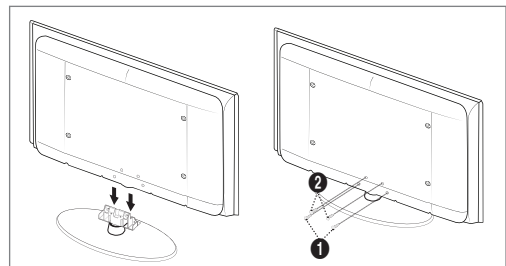
- ☑ This TFT LCD panel uses a panel consisting of sub pixels (3 133 440) which require sophisticated technology to produce. However, there may be few bright or dark pixels on the screen. These pixels will have no impact on the performance of the product.

Installing the Stand

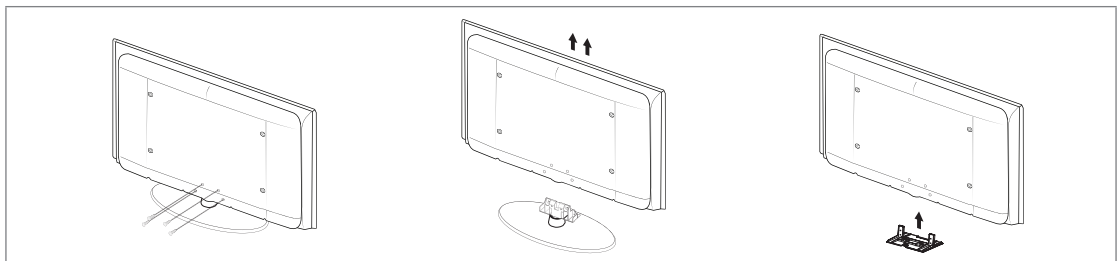
- ☑ **Pre-set:** Place the Guide Stand and Cover Neck onto the stand and fasten it using the screws. Applicable to 32inch models only.



1. Attach your LCD TV to the stand.
 - ☑ Two or more people should carry the TV.
 - ☑ Make sure to distinguish between the front and back of the stand when attaching it.
 - ☑ To make sure the TV is installed on the stand at a proper level, do not apply excess downward pressure to the upper left of right sides of the TV.
2. Fasten screws at position ❶ and then fasten screws at position ❷.
 - ☑ Stand the product up and fasten the screws. If you fasten the screws with the LCD TV placed down, it may lean to one side.



Disconnecting the Stand

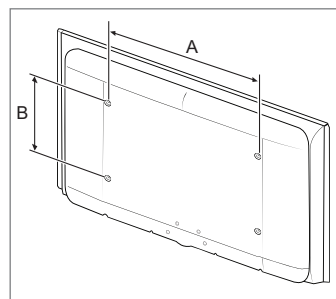


1. Remove four screws from the back of the TV.
2. Separate the stand from the TV.
 - ☑ Two or more people should carry the TV.
3. Cover the bottom hole with the cover.

Wall Mount Kit Specifications (VESA)

Install your wall mount on a solid wall perpendicular to the floor. When attaching to other building materials, please contact your nearest dealer. If installed on a ceiling or slanted wall, it may fall and result in severe personal injury.

Product Family	inches	VESA Spec. (A x B)	Standard Screw	Quantity
LCD-TV	19 ~ 22	100 x 100	M4	4
	23 ~ 29	200 x 100		
	30 ~ 40	200 x 200	M6	
	46 ~ 55	400 x 400	M8	
	57 ~ 70	800 x 400		
80 ~	1400 x 800			
PDP-TV	42 ~ 50	400 x 400	M8	4
	58 ~ 63	600 x 400		
	70 ~	800 x 400		
	80 ~	1400 x 800		
LFD	30 ~ 39	200 x 200	M6	4
	40 ~ 52	400 x 400	M8	
	55 ~ 70	800 x 400		
	70 ~	1400 x 800		



- ☑ Standard dimensions for wall mount kits are shown in the table above.
- ☑ When purchasing our wall mount kit, a detailed installation manual and all parts necessary for assembly are provided.
- ☑ Do not use screws longer than the standard dimension, as they may cause damage to the inside of the TV set.
- ☑ For wall mounts that do not comply with the VESA standard screw specifications, the length of the screws may differ depending on their specifications.
- ☑ Do not use screws that do not comply with the VESA standard screw specifications.
- ☑ Do not fasten the screws too strongly, this may damage the product or cause the product to fall, leading to personal injury. Samsung is not liable for these kinds of accidents.
- ☑ Samsung is not liable for product damage or personal injury when a non-VESA or non-specified wall mount is used or the consumer fails to follow the product installation instructions.
- ☑ Our 57 and 63 inch models do not comply with VESA Specifications. Therefore, you should use our dedicated wall mount kit for this model.
- ☑ Do not exceed 15 degrees tilt when mounting this TV.

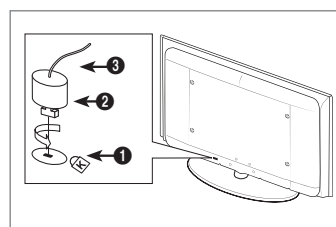
⚠ Do not install your Wall Mount Kit while your TV is turned on. It may result in personal injury due to electric shock.

Anti-Theft Kensington Lock

The Kensington Lock is a device used to physically fix the system when using it in a public place. The appearance and locking method may differ from the illustration depending on the manufacturer.

Refer to the manual provided with the Kensington Lock for proper use.

- ☑ The locking device has to be purchased separately.
 - ☑ The location of the Kensington Lock may be different depending on its model.
1. Insert the locking device into the Kensington slot on the LCD TV (❶) and turn it in the locking direction (❷).
 2. Connect the Kensington Lock cable (❸).
 3. Fix the Kensington Lock to a desk or a heavy stationary object.

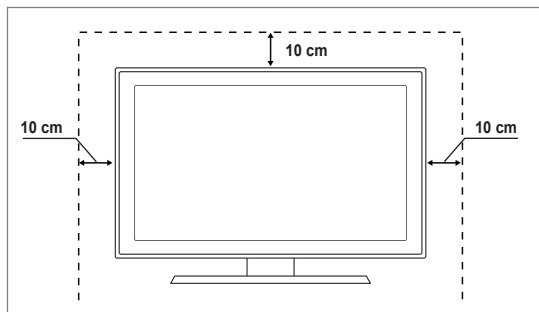


Securing the Installation Space

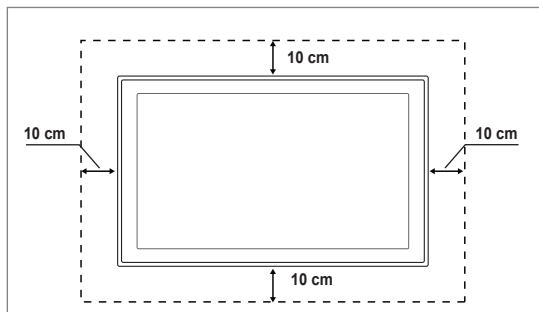
Keep the required distances between the product and other objects (e.g. walls) to ensure proper ventilation. Failing to do so may result in fire or a problem with the product due to an increase in the internal temperature of the product. Install the product so the required distances shown in the figure are kept.

- ☑ When using a stand or wall-mount, use parts provided by Samsung Electronics only.
 - If you use parts provided by another manufacturer, it may result in a problem with the product or an injury due to the product falling.
 - If you use parts provided by another manufacturer, it may result in a problem with the product or fire due to an increase in the internal temperature of the product due to poor ventilation.
- ☑ The appearance may differ depending on the product.

When installing the product with a stand



When installing the product with a wall-mount



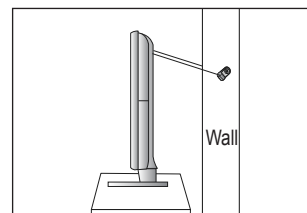
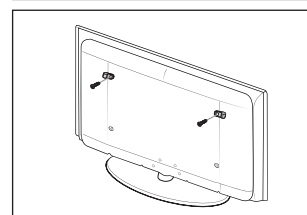
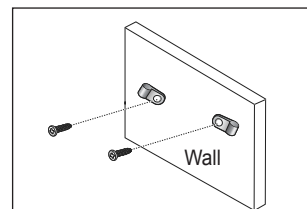
Securing the TV to the Wall



Caution: Pulling, pushing, or climbing on the TV may cause the TV to fall. In particular, ensure your children do not hang over or destabilize the TV; doing so may cause the TV to tip over, causing serious injuries or death. Follow all safety precautions provided on the included Safety Flyer. For added stability, install the anti-fall device for safety purposes, as follows.

To avoid the TV from falling:

1. Put the screws into the clamps and firmly fasten them onto the wall. Confirm that the screws have been firmly installed onto the wall.
 - ☑ You may need additional material such as an anchor depending on the type of wall.
 - ☑ Since the necessary clamps, screws, and string are not supplied, please purchase these additionally.
2. Remove the screws from the center back of the TV, put the screws into the clamps, and then fasten the screws onto the TV again.
 - ☑ Screws may not be supplied with the product. In this case, please purchase the screws of the following specifications.
 - ☑ Screw Specifications
 - For a 17 ~ 29 Inch LCD TV: M4 X 15 / For a 32 ~ 40 Inch LCD TV: M6 X 15
3. Connect the clamps fixed onto the TV and the clamps fixed onto the wall with a strong string and then tie the string tightly.
 - ☑ Install the TV near to the wall so that it does not fall backwards.
 - ☑ It is safe to connect the string so that the clamps fixed on the wall are equal to or lower than the clamps fixed on the TV.
 - ☑ Untie the string before moving the TV.
4. Verify all connections are properly secured. Periodically check connections for any sign of fatigue for failure. If you have any doubt about the security of your connections, contact a professional installer.



Specifications

Model Name	LN26B450	LN32B450, LN32B460
Screen Size Diagonal	26 inches	32 inches
Power Consumption Normal operation Standby	80W <1W	130W <1W
PC Resolution	1360 x 768 @ 60Hz	1360 x 768 @ 60Hz
Sound Output	5W x 2	10W x 2
Dimensions (WxDxH) Without Stand With stand	26.4 x 3.0 x 17.9 inches (669.7 x 75.3 x 455 mm) 26.4 x 8.5 x 19.5 inches (669.7 x 216 x 495.1 mm)	31.4 x 3.3 x 20.9 inches (797.7 x 84.8 x 530.5 mm) 31.4 x 9.9 x 22.7 inches (797.7 x 252 x 576.5 mm)
Weight Without Stand With Stand	15.4 lbs (7 kg) 18.5 lbs (8.4 kg)	20.0 lbs (9.1 kg) 25.1 lbs (11.4 kg)
Environmental Considerations Operating Temperature Operating Humidity Storage Temperature Storage Humidity	50°F to 104°F (10°C to 40°C) 10% to 80%, non-condensing -4°F to 113°F (-20°C to 45°C) 5% to 95%, non-condensing	
Stand Swivel Left / Right	-20° ~ 20°	
Model Name	LN37B450	LN40B450
Screen Size Diagonal	37 inches	40 inches
Power Consumption Normal operation Standby	140W <1W	180W <1W
PC Resolution	1360 x 768 @ 60Hz	1360 x 768 @ 60Hz
Sound Output	10W x 2	10W x 2
Dimensions (WxDxH) Without Stand With stand	36 x 3.7 x 23.8 inches (913.2 x 93.3 x 605.3 mm) 36 x 11.8 x 25.8 inches (913.2 x 300 x 656.2 mm)	39 x 3.7 x 25.3 inches (989.8 x 93.4 x 642.8 mm) 39 x 11.8 x 27.2 inches (989.8 x 300 x 692.1 mm)
Weight Without Stand With Stand	23.1 lbs (10.5 kg) 30.2 lbs (13.7 kg)	31.7 lbs (14.4 kg) 39.0 lbs (17.7 kg)
Environmental Considerations Operating Temperature Operating Humidity Storage Temperature Storage Humidity	50°F to 104°F (10°C to 40°C) 10% to 80%, non-condensing -4°F to 113°F (-20°C to 45°C) 5% to 95%, non-condensing	
Stand Swivel Left / Right	-20° ~ 20°	

- ☑ Design and specifications are subject to change without prior notice.
- ☑ This device is a Class B digital apparatus.
- ☑ For the power supply and Power Consumption, refer to the label attached to the product.

- This product uses parts of the software from the Independent JPEG Group.
- This product uses parts of the software owned by the Freetype Project (www.freetype.org).
- This product uses some software programs which are distributed under the GPL/LGPL license. Accordingly, the following GPL and LGPL software source codes that have been used in this product can be provided after asking to vdswwmanager@samsung.com.
 GPL software: Linux Kernel, Busybox, Binutils
 LGPL software: Glibc, ffmpeg, smpeg, libgphoto, libusb, SDL

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. 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 them 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 prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. 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.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

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

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work.

This License acknowledges your rights of fair use or other equivalent, as provided by copyright law. You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey 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; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to “keep intact all notices”.
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an “aggregate” if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation’s users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d. A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A “User Product” is either (1) a “consumer product”, which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, “normally used” refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

“Additional permissions” are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version. In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If 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 convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU 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 that a certain numbered version of the GNU General Public License “or any later version” applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy’s public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

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.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS 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.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

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 state 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 3 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, see <<http://www.gnu.org/licenses/>>.

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

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

<program> Copyright (C) <year> <name of author> This program 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, your program’s commands might be different; for a GUI interface, you would use an “about box”.

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

For more information on this, and how to apply and follow the GNU GPL, see <<http://www.gnu.org/licenses/>>.

The GNU 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. But first, please read <<http://www.gnu.org/philosophy/why-not-lgpl.html>>.

GNU Lesser General Public License (LGPL)

Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. 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 them 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 prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. 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.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

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

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A “Major Component”, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The “Corresponding Source” for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work’s System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work.

This License acknowledges your rights of fair use or other equivalent, as provided by copyright law. You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users’ Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work’s users, your or third parties’ legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey 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; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to “keep intact all notices”.
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d. A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An “entity transaction” is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party’s predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A “contributor” is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor’s “contributor version”.

A contributor’s “essential patent claims” are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, “control” includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor’s essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a “patent license” is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To “grant” such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. “Knowingly relying” means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient’s use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is “discriminatory” if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others’ Freedom.

If 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 convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU 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 that a certain numbered version of the GNU General Public License “or any later version” applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy’s public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

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.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS 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.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

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 state 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 3 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, see <<http://www.gnu.org/licenses/>>.

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

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

<program> Copyright (C) <year> <name of author> This program 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, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary.

For more information on this, and how to apply and follow the GNU GPL, see <<http://www.gnu.org/licenses/>>.

The GNU 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. But first, please read <<http://www.gnu.org/philosophy/why-not-lgpl.html>>.

LICENSE ISSUES

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org.

OpenSSL License

Copyright (c) 1998-2007 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"
4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young (ey@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License

Copyright (C) 1995-1998 Eric Young (ey@cryptsoft.com) All rights reserved.

This package is an SSL implementation written by Eric Young (ey@cryptsoft.com). The implementation was written so as to conform with Netscapes SSL.

This library is free for commercial and non-commercial use as long as the following conditions are aheared to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:


1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement: "This product includes cryptographic software written by Eric Young (ey@cryptsoft.com)" The word 'cryptographic' can be left out if the rouines from the library being used are not cryptographic related :-).
4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement: "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The licence and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

❑ Licença



TruSurround HD, SRS e símbolo  são marcas registradas da SRS Labs, Inc.
TruSurround HD é incorporada sob licença da SRS Labs, Inc.



Fabricado sob licença de Dolby Laboratories. Dolby e o símbolo D duplo são marcas comerciais da Dolby Laboratories.

❑ Precauções ao exibir uma imagem estática

Uma imagem estática pode causar danos permanentes na tela da TV.

Não exiba uma imagem estática no painel LCD por mais de 2 horas, pois isso poderá causar retenção de imagem na tela. Essa retenção de imagem também é conhecida como “queima da tela”. Para evitar essa retenção de imagem, reduza o grau de brilho e de contraste da tela ao exibir uma imagem estática.



O fato de assistir a TV LCD no formato 4:3 por um longo período de tempo pode deixar traços de bordas exibidos nas partes esquerda, direita e central da tela, causados pela diferença da emissão de luz na tela. A utilização de um DVD ou de um console de jogo pode causar um efeito similar na tela. Danos provocados pelo efeito acima não são cobertos pela Garantia.

A exibição de imagens estáticas de Vídeo games e PC por mais tempo que um determinado período pode produzir pós-imagens parciais. Para evitar esse efeito, reduza o ‘brilho’ e o ‘contraste’ ao exibir imagens estáticas.

ÍNDICE

INFORMAÇÕES GERAIS

■ Lista de funções	2
■ Acessórios	2
■ Visualizando o painel de controle	3
■ Visualizando o painel de conexão	4
■ Controle remoto	5
■ Colocação das pilhas no controle remoto	5

CONEXÕES

■ Ligar antenas VHF e UHF	6
■ Ligar a um sistema de televisão a cabo	7
■ Conexão de um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) por meio de HDMI	8
■ Conexão de um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) por meio de DVI	8
■ Conexão de um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) por meio de cabos Componente	9
■ Conectando uma filmadora	9
■ Ligar um vídeo cassete	10
■ Conexão de um sistema áudio digital	10
■ Como conectar um amplificador/DVD Home Theater	11
■ Conectar um computador	12

OPERAÇÕES

■ Visualização dos menus	13
■ Colocar a sua TV no modo de espera	14
■ Recurso Plug & Play	14

CANAL

■ Menu de Canais	15
■ Gerenciamento de Canais	17

IMAGEM

■ Menu de Imagem	19
■ Display do computador	23
■ Configuração da TV com o seu PC	24

SOM

■ Menu de Som	25
■ Conectando os fones de ouvido (Vendido separadamente)	26

CONFIGURAÇÃO

■ Menu de Configuração	27
------------------------------	----

ENTRADA / SUPORTE

■ Menu de Entrada	30
■ Menu de suporte	30

APÊNDICE

■ Solução de problemas	32
■ Instalação do suporte	33
■ Desconectar a base	33
■ Especificações do kit de montagem na parede (VESA)	34
■ Trava anti-furto Kensington	34
■ Segurança do espaço de instalação	35
■ Fixando a TV à Parede	35
■ Especificações	36



Símbolo



Nota

Botão de um toque



Botão TOOL

INFORMAÇÕES GERAIS

Lista de funções

- Imagem ajustável e definições de som que podem ser armazenadas na memória da TV.
- Temporizador automático para ligar e desligar a TV.
- Sleep Timer especial.
- Excelente rede de comunicação e interface digital : Com um sintonizador digital HD integrado, as transmissões HD sem assinatura podem ser visualizadas sem a necessidade de cabo/receptor de satélite (conversor Set-Top Box).
- Conexão HDMI/DVI do seu PC para esta TV.
- Qualidade de imagem excelente
- A tecnologia SRS TruSurround HD oferece um sistema virtual surround.

Acessórios

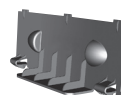
- Verifique se os itens a seguir foram incluídos com a TV de cristal líquido. Se algum item estiver faltando, entre em contato com o representante.
- A cor e o formato dos itens podem variar, dependendo do modelo.



Controle remoto e pilhas (AAA x 2)



Cabo de força



Tampa inferior



Pano de limpeza



(M4 X L16)

Parafuso do suporte X 4



Certificado de garantia/Certificado de registro/Guia de segurança



(M4 X L14)

Parafuso do suporte X 3
(LN32B450)

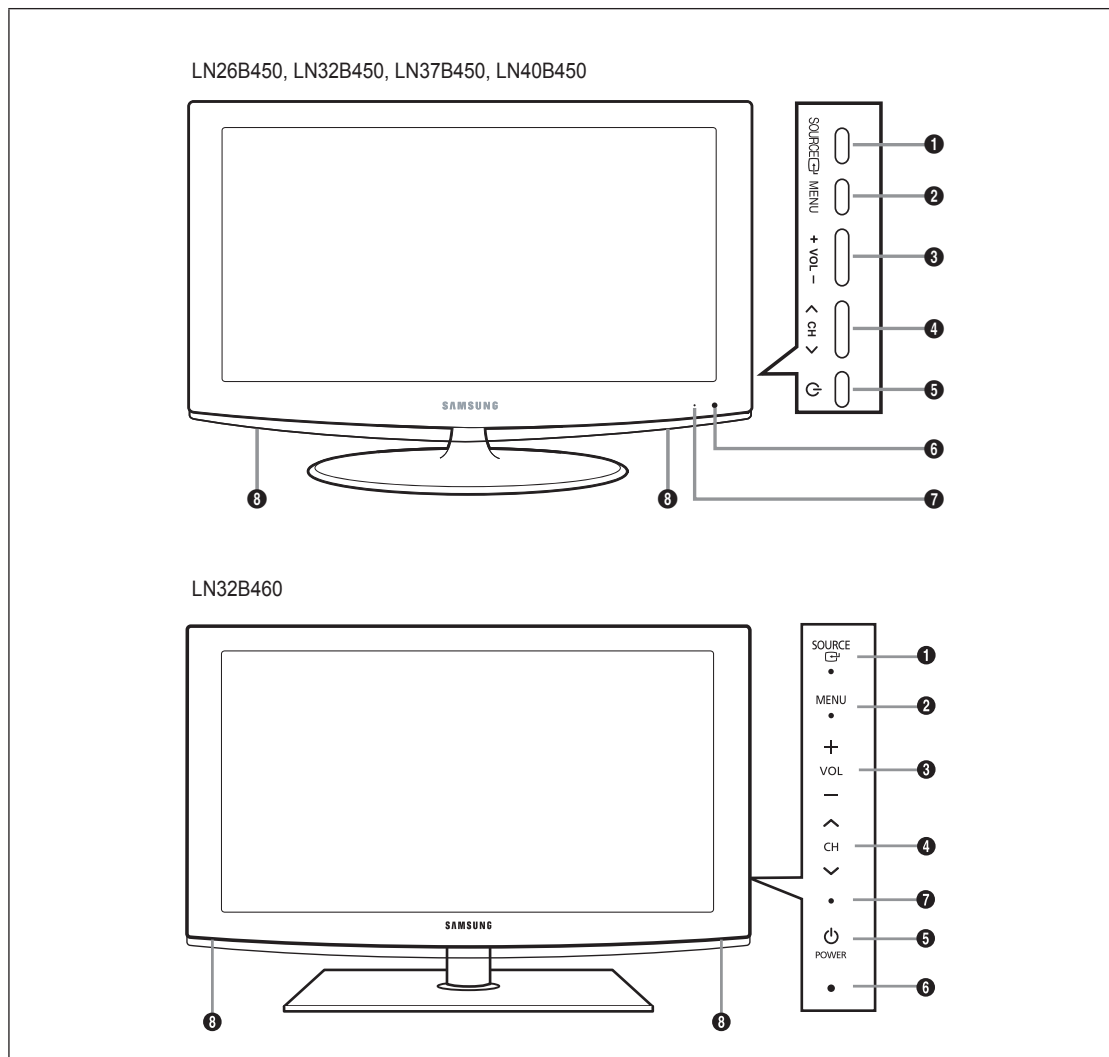


(M4 X L16)

Parafuso do suporte X 4
(LN32B460)

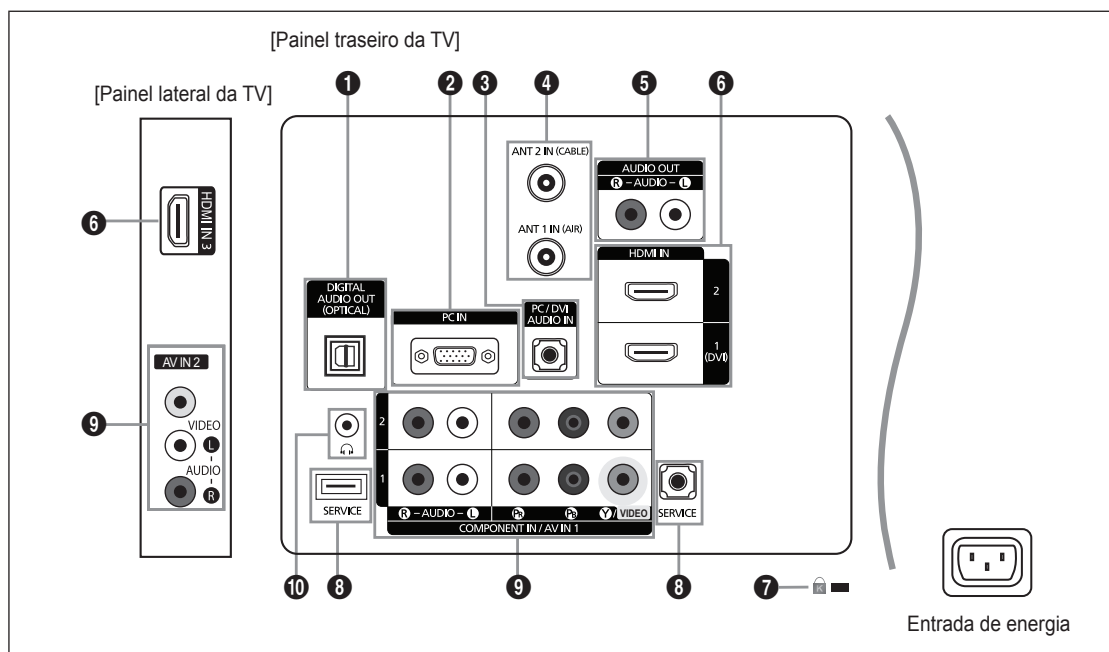
Visualizando o painel de controle

- ☑ A cor e o formato do produto podem variar, dependendo do modelo.
- ☑ Você pode usar um botão pressionando os botões da lateral do painel.(LN26B450, LN32B450, LN37B450, LN40B450)
- ☑ É possível ativar os botões do painel frontal tocando-os com o seu dedo.(LN32B460)



- 1 SOURCE** : Alterna entre todas as fontes de entrada disponíveis. No menu de tela, use este botão da mesma forma que utiliza o botão **ENTER** no controle remoto.
- 2 MENU**: Pressione para ver o menu na tela das funções da sua TV.
- 3 + VOL -**: Pressione para aumentar ou diminuir o volume. No menu de tela, use os botões **+ VOL -** da mesma forma que utilizaria os botões **◀ ▶** no controle remoto.
- 4 < CH >**: Pressione para mudar os canais. No menu de tela, use os botões **< CH >** da mesma forma que utilizaria os botões **▼ ▲** no controle remoto.
- 5** (**POWER**): Pressione para ligar e desligar a TV.
- 6 INDICADOR DE ENERGIA**: Pisca e apaga com a energia ligada e acende em modo standby.
- 7 SENSOR DO CONTROLE REMOTO**: Aponte o controle remoto para este ponto na TV.
- 8 ALTO-FALANTES**

Visualizando o painel de conexão



☑ A cor e o formato do produto podem variar, dependendo do modelo.

1 DIGITAL AUDIO OUT (OPTICAL)

Conecta a um componente de áudio digital, tal como um receptor de home theater.

2 PC IN

Conecta as saídas de áudio e vídeo do seu PC.

3 PC/DVI AUDIO IN

Conecte à tomada de saída de áudio do PC.

Saídas de áudio de DVI para dispositivos externos.

4 ANT 1 IN (AIR) / ANT 2 IN (CABLE)

Conecta uma antena ou um sistema de TV a cabo.

5 AUDIO OUT [R-AUDIO-L]

Conecta as saídas de áudio ao amplificador/home theater.

6 HDMI IN 1 (DVI), 2, 3

Conecta a saída HDMI de um dispositivo à uma entrada HDMI.

☑ Nenhuma conexão de som é necessária para conexões entre dispositivos HDMI.

☑ Use o conector **HDMI IN 1 (DVI)** para conectar um DVI a um dispositivo externo. Use um cabo DVI para HDMI ou adaptador DVI-HDMI (DVI para HDMI) para conexão de vídeo e as tomadas **PC / DVI AUDIO IN** para áudio. Ao usar uma conexão a cabo HDMI/DVI, é necessário utilizar um conector **HDMI IN 1 (DVI)**.

7 TRAVA KENSINGTON

A trava Kensington (opcional) é um dispositivo usado para proteger fisicamente o sistema quando usado em um local público. Se deseja usar o dispositivo de trava, entre em contato com o revendedor no qual a TV foi adquirida.

☑ A posição da trava Kensington poderá ser diferente, dependendo do modelo.

8 SERVICE

Conector apenas para manutenção.

9 COMPONENT IN 1, 2

Conecta um componente de áudio/vídeo. O conector do **COMPONENT IN 1** também é utilizado no conector **AV IN 1**.

☑ Conectar o cabo de vídeo ao conector **COMPONENT IN 1 [Y/VIDEO]** e o cabo de áudio aos conectores **COMPONENT IN 1 [R-AUDIO-L]**.

AV IN 1, 2 [VIDEO] / [R-AUDIO-L]

Entradas de vídeo e áudio para dispositivos externos, como uma filmadora ou um vídeo cassete.

10 (FONE DE OUVIDO)

Os fones de ouvido podem ser conectados à saída de fones de ouvido do seu aparelho. Enquanto os fones de ouvido estiverem conectados, o som dos alto-falantes internos será desativado.



- ☑ A utilização da função de áudio fica restrita ao conectar fones de ouvido à TV.
- ☑ O uso prolongado de fones de ouvido em um volume alto pode prejudicar sua audição.
- ☑ Você não ouvirá o som dos alto-falantes quando conectar os fones de ouvido à TV.
- ☑ O volume do fone de ouvido e da TV são ajustados separadamente.


Controle remoto

- ☑ Utilize o controle remoto até aproximadamente 7 metros de distância da TV.
- ☑ Pode acontecer do funcionamento do controle remoto ser alterado por luz clara.
- ☑ A cor e o formato do produto podem variar, dependendo do modelo.

1 **POWER:** Liga e desliga a TV.

2 **BOTÕES NUMÉRICOS:** Pressione para mudar o canal.

3 : Pressione para selecionar mais canais (digitais) transmitidos pela mesma estação. Por exemplo, para selecionar o canal '54-3', pressione '54', '' e então '3'.

4 **MUTE** : Pressione para interromper temporariamente o som.

5 **- VOL +**: Pressione para aumentar ou diminuir o volume.

6 **CH LIST:** Usado para exibir listas de canais na tela.

7 **TOOLS:** Use esta opção para selecionar rapidamente as funções usadas com mais frequência.

8 **INFO:** Pressione para exibir informações na tela da TV.

9 **BOTÕES COLORIDOS:** Utilize esses botões nos menus **Lista de Canais**, etc.

10 **P.SIZE:** Seleção de tamanho da imagem.

11 **TV:** Seleciona o modo de TV diretamente.

12 **PRE-CH:** Permite que você retorne ao canal anterior que estava assistindo.


13 **∨ CH ^:** Pressione para mudar os canais.

14 **SOURCE:** Pressione para exibir e selecionar as fontes de vídeo disponíveis.

15 **FAV.CH:** Pressione para alternar entre seus canais favoritos.

16 **MENU:** Exibe o menu na tela principal.

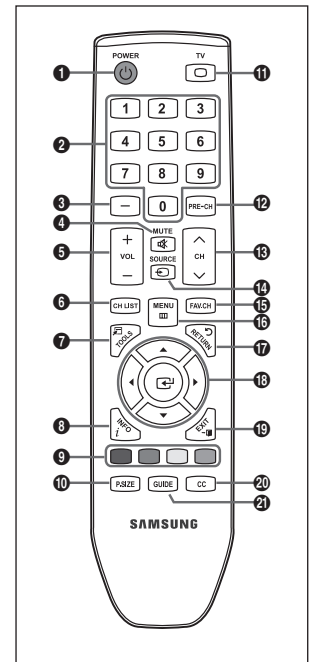
17 **RETURN:** Volta ao menu anterior.

18 **PARA CIMA ▲/PARA BAIXO ▼/ ESQUERDA ◀/DIREITA ▶/ ENTER** : Use para selecionar itens de menu na tela e alterar valores no menu.

19 **EXIT:** Pressione para sair do menu.

20 **CC:** Controla o decodificador de legenda.

21 **GUIDE:** Exibição do guia de programação eletrônica (EPG - Electronic Program Guide)



Colocação das pilhas no controle remoto

1. Levante a tampa localizada na parte traseira do controle remoto, conforme mostrado na figura.

2. Coloque duas pilhas de tamanho AAA.

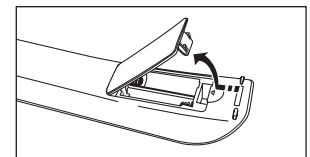
- ☑ Certifique-se de combinar os pólos '+' e '-' das pilhas com o diagrama no interior do compartimento.

3. Recoloque a tampa do compartimento das pilhas.

- ☑ Remova as pilhas e guarde-as em um local fresco e seco, se não for utilizar o controle remoto por um longo período. (Considerando a utilização normal da TV, as pilhas podem durar aproximadamente um ano.)

☑ Se o controle remoto não funcionar, verifique o seguinte:

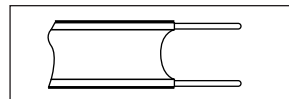
- A TV está ligada?
- Os pólos e menos das pilhas estão invertidos?
- As pilhas estão descarregadas?
- Há falta de energia ou o cabo de energia está fora da tomada?
- Existe uma luz fluorescente especial ou um sinal de néon nas proximidades?



CONEXÕES

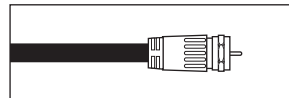
Ligar antenas VHF e UHF

Se a antena tiver um conjunto de cabos condutores semelhantes ao da ilustração, consulte a seção 'Antenas com cabo condutor duplo horizontal de 300 Ω' a seguir.



Se a antena tiver um cabo condutor semelhante à ilustração da direita, consulte 'Antenas com cabo condutor redondo de 75 Ω'.

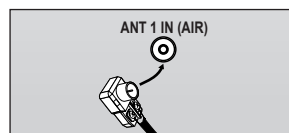
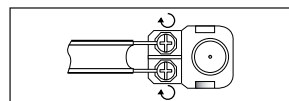
Se você tiver duas antenas, consulte 'Antenas VHF e UHF separadas'.



Antenas com cabo condutor duplo horizontal de 300 Ω

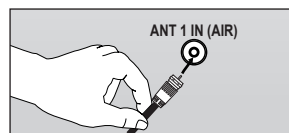
Se você estiver utilizando uma antena externa (por exemplo, uma antena de telhado ou uma antena em V) que tenha um cabo condutor duplo horizontal de 300 Ω, siga as instruções a seguir.

1. Coloque os fios do cabo condutor duplo sob os parafusos em um adaptador de 300-75 Ω (não fornecido). Utilize uma chave de fenda para apertar os parafusos.
2. Conecte o adaptador ao terminal **ANT 1 IN (AIR)** na parte traseira da TV.



Antenas com cabo condutor redondo de 75 Ω

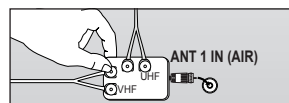
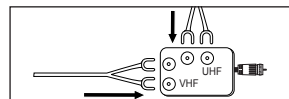
Conecte o cabo da antena ao terminal **ANT 1 IN (AIR)** na parte traseira da TV.



Separar antenas VHF e UHF

Se houver duas antenas separadas para o televisor (uma VHF e outra UHF), é preciso combinar os dois sinais de antena antes de ligar as antenas ao televisor. Este procedimento requer um adaptador opcional (disponível na maioria das lojas de eletrônica).

1. Conecte os dois cabos da antena ao combinador.
2. Conecte o combinador ao terminal **ANT 1 IN (AIR)** na parte traseira da TV.



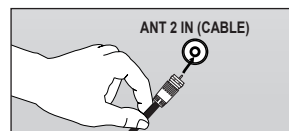
Ligar a um sistema de televisão a cabo

Para fazer a ligação a um sistema de televisão a cabo, seguir as instruções abaixo.

Ligação a cabo sem utilizar um decodificador

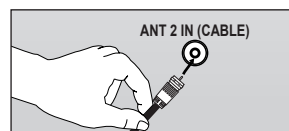
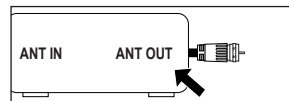
Conecte o cabo de entrada ao terminal **ANT 2 IN (CABLE)** na parte traseira da TV.

- ☑ Como este televisor já está preparado para uma ligação a cabo, não é necessário um decodificador para ver os canais da televisão a cabo decodificados.



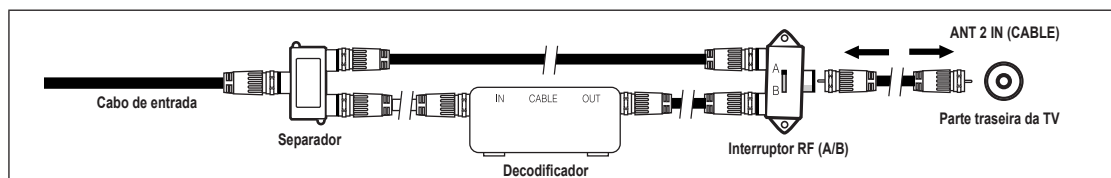
Fazer a ligação a um decodificador para todos os canais

1. Localize o cabo conectado ao terminal **ANT OUT** no decodificador.
 - ☑ Esse terminal pode ser identificado como 'ANT OUT' (saída da antena), 'VHF OUT' (saída VHF) ou, simplesmente, 'OUT' (saída).
2. Conecte a outra extremidade do cabo ao terminal da **ANT 2 IN (CABLE)** na parte traseira da TV.



Fazer a ligação a um decodificador que serve para alguns canais

Se o decodificador servir apenas para alguns canais (como os canais 'premium'), seguir as instruções abaixo. Vai precisar de um separador de duas vias, um alternador RF (A/B) e quatro metros de cabo RF. (Estes acessórios estão disponíveis na maioria das lojas de eletrônica.)

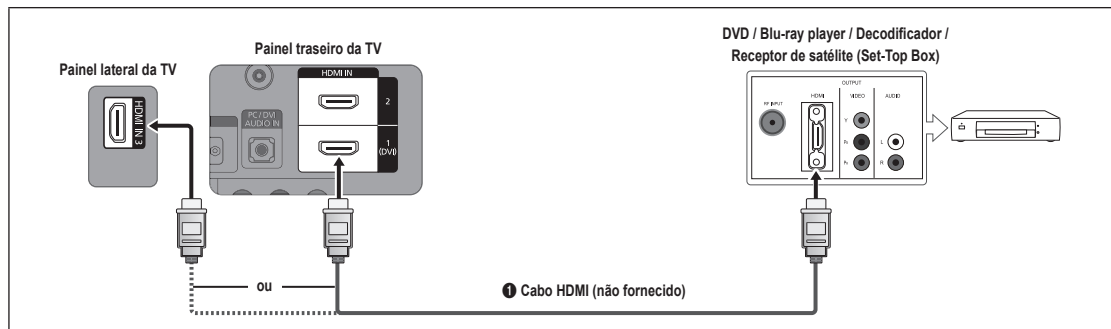


1. Localize e desconecte o cabo conectado ao terminal **ANT IN** no decodificador.
 - ☑ Esse terminal pode ser identificado como 'ANT IN' (entrada da antena), 'VHF IN' (entrada de VHF) ou, simplesmente, 'IN' (entrada).
2. Conecte o cabo ao divisor de duas vias.
3. Conecte um cabo RF entre o terminal **OUTPUT** (saída) no divisor e o terminal **IN** (entrada) no decodificador.
4. Conecte um cabo RF entre o terminal **ANT OUT** no decodificador e o terminal **B-IN** no interruptor RF (A/B).
5. Conecte outro cabo entre o terminal **OUT** no divisor e o terminal **A-IN** no interruptor RF (A/B).
6. Conecte o último cabo de antena entre o terminal **OUT** no interruptor RF (A/B) e o terminal **ANT 2 IN (CABLE)** na parte traseira da TV.

Depois de ter feito essa conexão, ajuste o interruptor A/B na posição 'A' para a visualização normal. Coloque o interruptor A/B na posição 'B' para visualizar os canais codificados. (Ao ajustar o interruptor A/B em 'B', você precisará sintonizar a TV com o canal de saída do decodificador, que normalmente é o canal 3 ou 4.)

Conexão de um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) por meio de HDMI

Esta conexão pode ser efetuada apenas se houver uma saída HDMI no dispositivo externo.



1. Conecte um cabo HDMI entre a entrada **HDMI IN 1(DVI)**, **2**, **3** da TV e a saída HDMI do DVD player ou Decodificador / Receptor de satélite (Set-Top Box).

O que é HDMI?

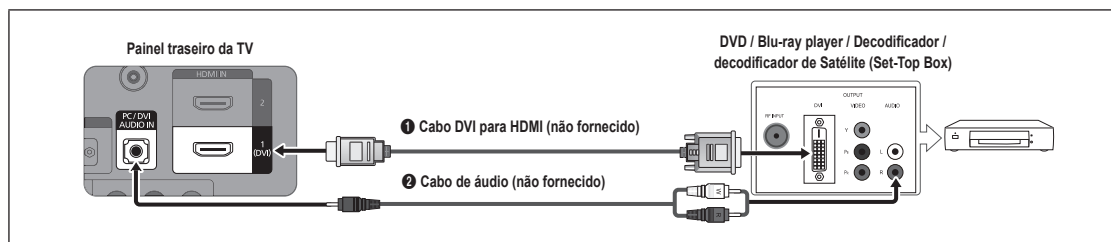
- HDMI (interface multimídia de alta definição) é uma interface que permite a transmissão digital de sinais de vídeo e de áudio com apenas um cabo.
- A diferença entre HDMI e DVI é que o dispositivo HDMI é menor e tem instalado o recurso de codificação HDCP (High Bandwidth Digital Copy Protection – Proteção de Conteúdo Digital de Alta Largura de Banda).

Pode não sair som da TV ou as imagens podem ser exibidas com cores anormais quando o DVD Player/Blu-ray player/Cabo/Receptor ou decodificador de Satélite (Set-Top Box) suportarem versões HDMI anteriores à 1.3. Se conectar um cabo HDMI mais antigo e não ouvir o som, conecte o cabo HDMI à entrada **HDMI IN 1(DVI)** e os cabos de áudio às entradas **PC/DVI AUDIO IN** na parte traseira da TV. Se isto acontecer, entre em contato com a empresa fornecedora do DVD player/Blu-ray player/Cabo/receptor de satélite para confirmar a versão HDMI, em seguida, solicite uma atualização.

Cabos HDMI diferentes da versão 1.3 podem causar distúrbios de cintilação na imagem ou podem impedir a exibição da imagem.

Conexão de um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) por meio de DVI

Só se aplica se existe o conector de saída DVI no dispositivo externo.



1. Conecte um cabo DVI a HDMI ou adaptador DVI-HDMI entre a entrada **HDMI IN 1(DVI)** da TV e a saída DVI do DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box).
2. Conecte os cabos de áudio entre a entrada **PC/DVI AUDIO IN** da TV e o DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box).

Cada DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) possui uma configuração de painel traseiro diferente.

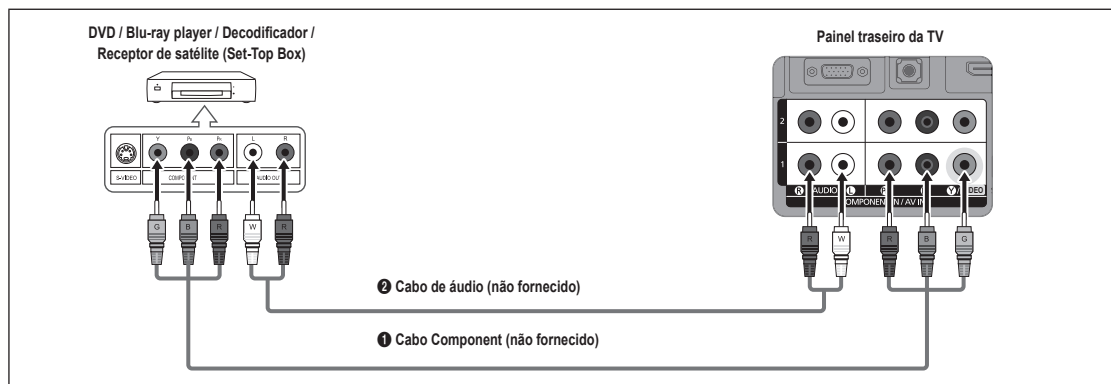
Ao conectar um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box), use um terminal de conexão com a mesma cor do cabo.

Use o entrada **HDMI IN 1(DVI)** para conectar um DVI a um dispositivo externo. Use um cabo DVI para HDMI ou adaptador DVI-HDMI (DVI para HDMI) para conexão de vídeo e as entradas **PC/DVI AUDIO IN** para áudio. Ao usar uma conexão a cabo HDMI/DVI, é necessário utilizar um entrada **HDMI IN 1(DVI)**.

Ao usar uma conexão a cabo HDMI/DVI, será necessário utilizar o entrada **HDMI IN 1(DVI)**.

Conexão de um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) por meio de cabos Componente

As entradas do painel traseiro na TV facilitam a conexão do DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) com a sua TV.

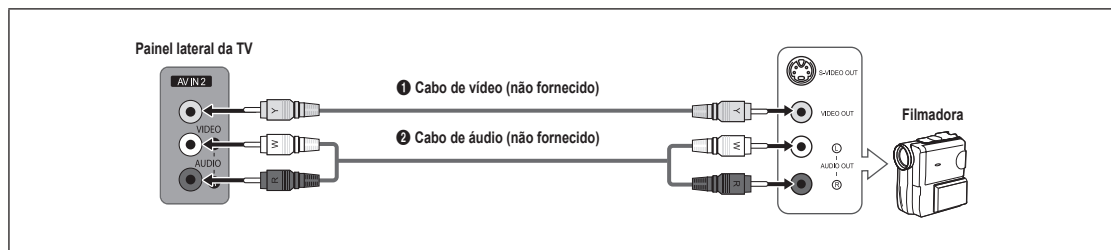


1. Conecte um cabo Componente entre as entradas **COMPONENT IN (1 ou 2)** [Y, Pb, Pr] da TV e as saídas COMPONENT [Y, Pb, Pr] do DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box).
2. Conecte os cabos de áudio entre as entradas **COMPONENT IN (1 ou 2)** [R-AUDIO-L] da TV e as saídas AUDIO OUT do DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box).
 - ☑ O Vídeo Componente separa o vídeo em Y (luminância(brilho)), Pb (azul) e Pr (vermelho) para obter uma qualidade de vídeo superior. Verifique se as conexões de Vídeo Componente e áudio são iguais. Por exemplo, se conectar um cabo Vídeo Componente em **COMPONENT IN 1**, conecte o cabo de áudio também em **COMPONENT IN 1**.
 - ☑ Cada DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box) possui uma configuração de painel traseiro diferente.
 - ☑ Ao conectar um DVD / Blu-ray player / Decodificador / Receptor de satélite (Set-Top Box), use um terminal de conexão com a mesma cor do cabo.

Conectando uma filmadora

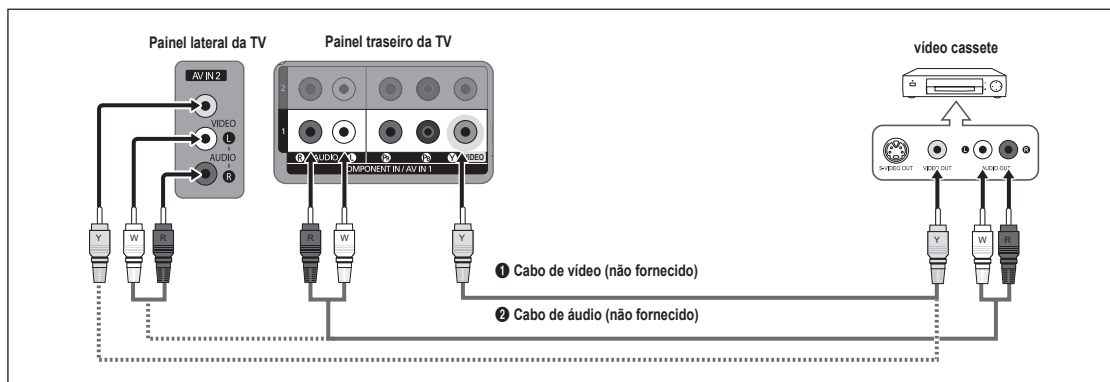
As entradas do painel lateral na TV facilitam a conexão de uma filmadora com a sua TV.

Elas permitem que você visualize as fitas da filmadora sem utilizar um vídeo cassete.



1. Conecte um cabo de vídeo entre a entrada **AV IN 2 [VIDEO]** da TV e a saída VIDEO OUT da filmadora.
2. Conecte os cabos de áudio entre as entradas **AV IN 2 [R-AUDIO-L]** da TV e as saídas AUDIO OUT da filmadora.
 - ☑ Cada dispositivo de fonte de entrada externa possui uma configuração diferente para o painel traseiro.
 - ☑ Ao conectar um dispositivo externo, use um terminal de conexão com a mesma cor do cabo.

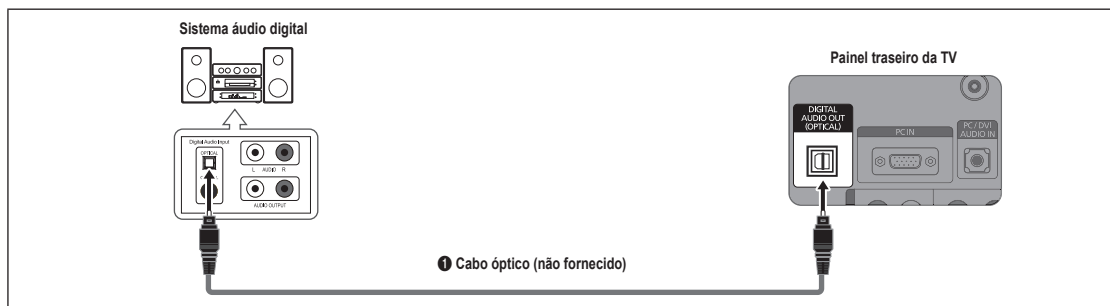
Ligar um vídeo cassette



1. Conecte um cabo de vídeo entre a entrada **AV IN 1 [Y/VIDEO]** ou **AV IN 2 [VIDEO]** da TV e a saída **VIDEO OUT** do vídeo cassette.
2. Conecte os cabos de áudio entre as entradas **AV IN (1 ou 2) [R-AUDIO-L]** da TV e as saídas **AUDIO OUT** do vídeo cassette.
 - ☑ Se você possui um vídeo cassette 'mono' (não estéreo), use um conector Y (não fornecido) para conectá-lo às entradas de áudio direita e esquerda da TV. Outra opção é a conexão do cabo ao conector 'R'. Se o seu vídeo cassette for estéreo, conecte dois cabos.
 - ☑ Cada dispositivo de fonte de entrada externa possui uma configuração diferente para o painel traseiro.
 - ☑ Ao conectar um dispositivo externo, use um terminal de conexão com a mesma cor do cabo.
 - ☑ Ao conectar ao **AV IN 1**, a cor do conector **AV IN 1 [Y/VIDEO]** (verde) não corresponde à cor do cabo de vídeo (amarelo).

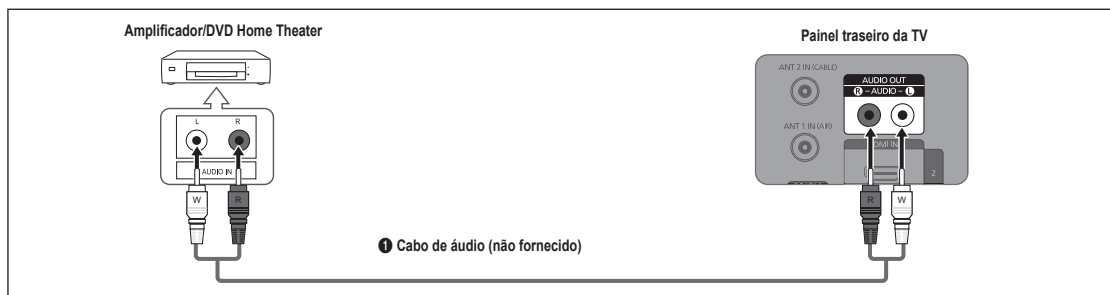
Conexão de um sistema áudio digital

As entradas do painel traseiro na TV facilitam a conexão de um sistema áudio digital (home theater / receptor) à sua TV.



1. Conecte o cabo óptico entre a saída **DIGITAL AUDIO OUT (OPTICAL)** da TV e a entrada Digital Audio Input do sistema áudio digital.
 - ☑ Quando um sistema de áudio digital estiver conectado ao conector **DIGITAL AUDIO OUT (OPTICAL)**: Diminua o volume da TV e ajuste o nível do volume com o controle de volume do sistema.
 - ☑ Áudio 5.1 CH é possível quando a TV está conectada a um dispositivo externo que ofereça suporte a tal tecnologia.
 - ☑ Quanto o receptor do home theater estiver ajustado em On, você poderá ouvir a reprodução de som pelo conector óptico da TV. Quando a TV estiver exibindo um sinal DTV (aéreo), a TV emitirá um som de 5.1 canais ao receptor do home theater. Quando a fonte é um componente digital como um receptor de DVD player/Blu-ray player/Cabo/Satélite e estiver conectada à TV via HDMI, somente será ouvido som de 2 canais do receptor do home theater. Caso deseje ouvir áudio 5.1 CH, conecte o conector digital audio out do receptor do DVD player/Blu-ray player/Cabo/Satélite diretamente a um Amplificador ou Home theater, e não à TV.

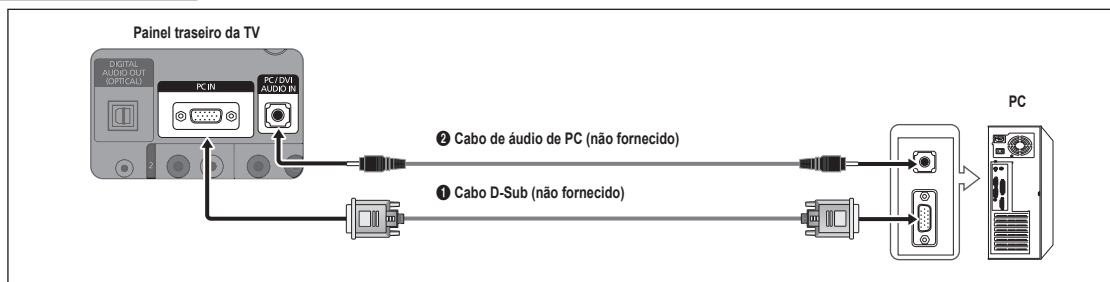
Como conectar um amplificador/DVD Home Theater



1. Conecte os cabos de áudio entre as saídas **AUDIO OUT [R-AUDIO-L]** da TV e as entradas Audio Input do amplificador / DVD home theater.
 - ☞ Quando um amplificador de áudio estiver conectado aos conectores **AUDIO OUT [R-AUDIO-L]**: Diminua o volume da TV e ajuste o nível do volume com o controle de volume do amplificador.
 - ☞ Cada Amplificador/DVD Home Theater possui uma configuração diferente para o painel traseiro.
 - ☞ Ao conectar um amplificador / DVD home theater, use um terminal de conexão da mesma cor do cabo.

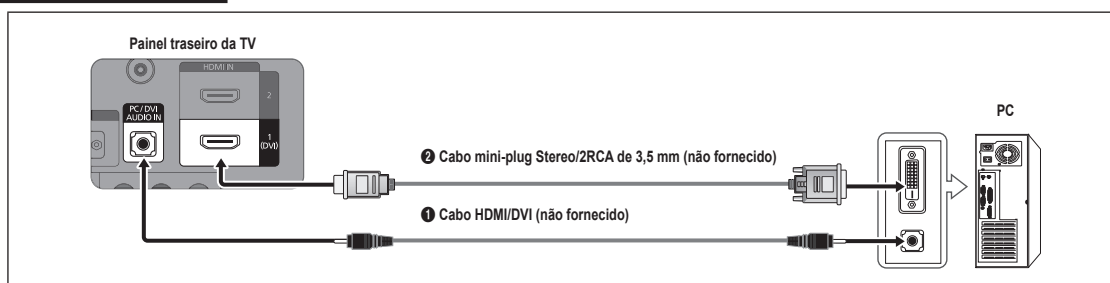
Conectar um computador

Usando o Cabo D-Sub



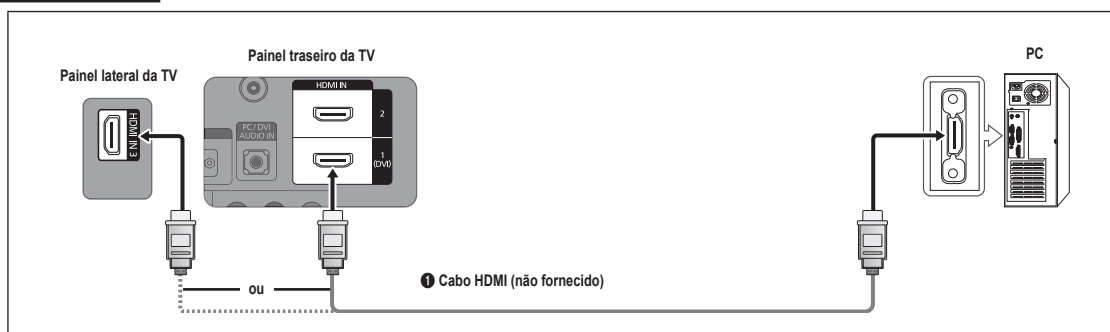
1. Conecte um cabo D-Sub entre o conector **PC IN** da TV e o conector de saída PC no seu computador.
 2. Conecte um cabo de áudio de PC entre a entrada **PC/DVI AUDIO IN** da TV e a saída Audio Out da placa de som do seu computador.
- ☑ Ao conectar um PC, use um terminal de conexão com a mesma cor do cabo.

Usando o cabo HDMI/DVI



1. Conecte um cabo HDMI/DVI entre a entrada **HDMI IN 1 (DVI)** na TV e a saída PC no seu computador.
 2. Conecte um cabo mini-plug Stereo/2RCA de 3,5 mm entre a entrada **PC/DVI AUDIO IN** da TV e a saída Audio Out da placa de som do seu computador.
- ☑ Ao usar uma conexão a cabo HDMI/DVI, você deve usar o terminal **HDMI IN 1 (DVI)**.

Uso do cabo HDMI

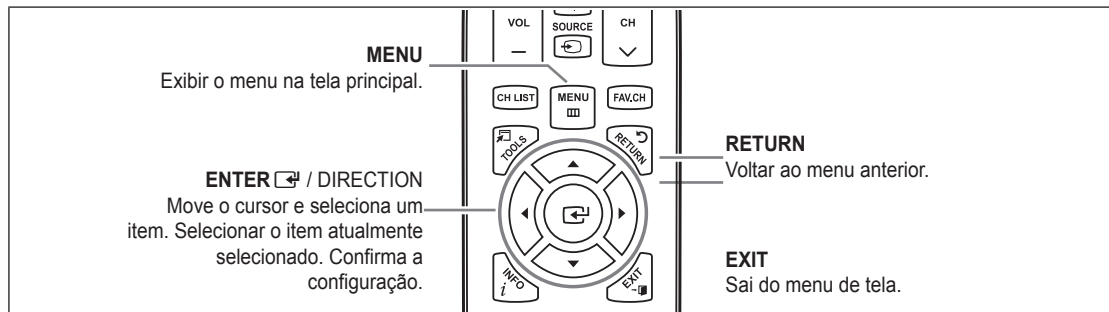


1. Conecte um cabo HDMI entre a tomada **HDMI IN 2**, **3** ou **HDMI IN 1 (DVI)** da TV e a saída PC do seu computador.
- ☑ Cada PC possui uma configuração diferente para o painel traseiro.

OPERAÇÕES

Visualização dos menus

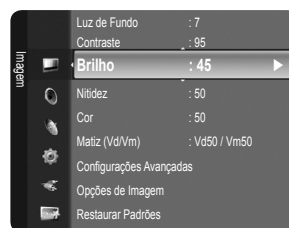
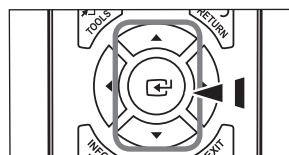
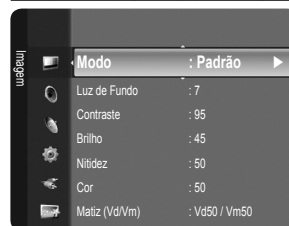
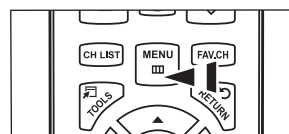
Antes de usar a TV, siga as etapas abaixo para aprender como utilizar o menu para selecionar e ajustar as diferentes funções.



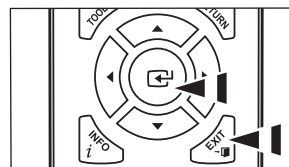
Operação do Menu (Exibição na tela)

As etapas de acesso podem ser diferentes dependendo do menu selecionado.

1. Pressione o botão **MENU**.
2. O menu principal aparece na tela. A lateral esquerda do menu possui ícones: **Imagem, Som, Canal, Configuração, Entrada, Aplicativos, Suporte**.
3. Pressione o botão **▲** ou **▼** para selecionar um dos ícones.
4. Então pressione o botão **ENTER** para acessar o submenu do ícone.
5. Pressione o botão **▲** ou **▼** para seleccione o submenu do ícone.
6. Pressione o botão **◀** ou **▶** para reduzir ou aumentar o valor de um item específico. As etapas para ajuste de Menu podem ser diferentes dependendo do menu selecionado.
7. Pressione o botão **ENTER** para concluir a configuração. Pressione o botão **EXIT** para sair.





Ícone de ajuda

















Colocar a sua TV no modo de espera

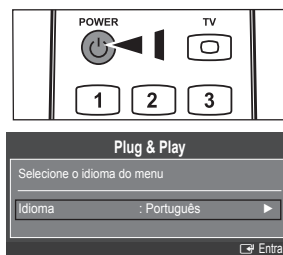
Seu aparelho pode ser colocado no modo de espera para reduzir o consumo de energia. O modo de espera pode ser útil quando você quer parar de assistir a TV temporariamente (durante uma refeição, por exemplo).

1. Pressione o botão **POWER**  no controle remoto.
 - A tela é desligada e um indicador vermelho de espera é exibido no aparelho.
2. Para ligar o aparelho, é só pressionar o botão **POWER**  novamente.
 - Não deixe o seu aparelho no modo de espera por longos períodos (quando você viajar, por exemplo). É melhor desligar o aparelho do cabo elétrico e da antena.



Recurso Plug & Play

Quando a TV for ligada, os ajustes básicos serão realizados de maneira automática e sequencial.

1. Pressione o botão **POWER**  no controle remoto.
 - Também é possível usar o botão **POWER**  da TV.
 - A mensagem **Selecione o idioma do menu** será exibida.
2. Pressione o botão **ENTER** . Pressione o botão **▲** ou **▼** para selecionar o idioma e em seguida pressione **ENTER** . A mensagem **Selecione "Casa" ao instalar a TV em sua casa.** será exibida.
3. Pressione o botão **◀** ou **▶** para selecionar **Loja** ou **Casa** e então pressione **ENTER** . A mensagem **Selecione a antena para memorizar.** será exibida.
 - Recomendamos que a TV seja configurada no modo **Casa** para a melhor imagem em sua casa.
 - Loja** serve apenas para uso em ambiente de vendas.
 - Se o televisor for, acidentalmente, configurado para o modo **Loja** e você quiser retornar ao modo **Casa** (Padrão): Pressione o botão de volume da TV. Quando o Menu do volume for exibido, mantenha pressionado o botão **MENU** na TV durante 5 segundos.
4. Pressione o botão **▲** ou **▼** para memorizar os canais da conexão selecionada. Pressione o botão **ENTER**  para selecionar **Iniciar**.
 - Ar**: Sinal de antena aéreo. / **Cabo**: Sinal da antena a cabo. / **Ar + Cabo**: Sinais de antena aéreo e a cabo.
 - Se a antena estiver conectada a **ANT 1 IN (AIR)**, selecione **Ar**, e se estiver conectada a **ANT 2 IN (CABLE)**, selecione **Cabo**.
 - Se tanto a **ANT 1 IN (AIR)** quanto a **ANT 2 IN (CABLE)** estiverem conectadas, selecione **Ar + Cabo**.
5. Pressione o botão **ENTER**  para selecionar **Iniciar**. A TV começa a memorizar todos os canais disponíveis.
 - Para parar a busca antes de seu final, pressione o botão **ENTER**  com **Parar** selecionado.
 - Depois que todos os canais disponíveis forem armazenados, os canais com sinal fraco começarão a ser removidos. O menu de programação automática será então exibido novamente. Pressione o botão **ENTER**  quando a memorização de canal estiver concluída. A mensagem **Ajustar o Modo Relógio** será exibida.
6. Pressione o botão **ENTER** . Pressione o botão **▲** ou **▼** para selecionar **Auto** e em seguida pressione **ENTER** . A mensagem **Selecionar o fuso horário de onde você mora.** será exibida. Se você selecionar **Manual**, **Ajustar data e hora atuais** será exibida.
7. Pressione o botão **▲** ou **▼** para destacar o fuso horário de sua área. Pressione o botão **ENTER** . Se você tiver recebido um sinal digital, a hora será ajustada automaticamente. [Eng]If not, select **Manual** to set the clock. (consulte a página 27)
8. É oferecido o método de conexão para fornecer a melhor qualidade de imagem HD. Depois de confirmar o método, pressione o botão **ENTER** .
9. A mensagem **Bom filme** será exibida. Ao concluir, pressione o botão **ENTER** .



Se você quiser restaurar esse recurso...

1. Pressione o botão **MENU** para exibir o menu. Pressione o botão **▲** ou **▼** para selecionar **Configuração** e em seguida pressione **ENTER** .
2. Pressione o botão **ENTER**  novamente para selecionar **Plug & Play**.
 - O recurso **Plug & Play** está disponível somente no modo TV.
 - Se um canal for bloqueado utilizando a função **Bloqueio de Canais**, a janela de digitação da senha será exibida. (consulte a página 28)

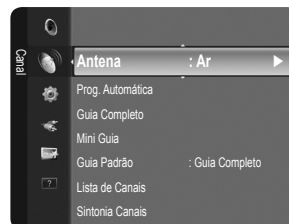


Menu de Canais

☐ Antena → Ar / Cabo

Antes de a TV iniciar a memorização dos canais disponíveis, você deverá especificar o tipo de fonte de sinal conectada à TV (isto é, Ar ou sistema de Cabo).

- ☑ Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Também é possível definir a antena selecionando **Ferramentas** → **Chavear para cabo** (ou **Chavear para ar**).
- ☑ Se a antena estiver conectada a **ANT 1 IN (AIR)**, selecione **Ar**, e se estiver conectada a **ANT 2 IN (CABLE)**, selecione **Cabo**.
- ☑ Se tanto a **ANT 1 IN (AIR)** quanto a **ANT 2 IN (CABLE)** estiverem conectadas, selecione a entrada de antena desejada.
- ☑ Se a entrada de antena não for selecionada adequadamente, podem aparecer interferências na tela.



☐ Prog. Automática

■ **Ar:** Sinal de antena aéreo. / **Cabo:** Sinal da antena a cabo. / **Ar+Cabo:** Sinais de antena aéreo e a cabo.

- ☑ Se a antena estiver conectada a **ANT 1 IN (AIR)**, selecione **Ar**, e se estiver conectada a **ANT 2 IN (CABLE)**, selecione **Cabo**.
- ☑ Se tanto a **ANT 1 IN (AIR)** quanto a **ANT 2 IN (CABLE)** estiverem conectadas, selecione **Ar+Cabo**.
- ☑ Se você quiser interromper a programação automática, pressione **ENTER** [↵]. A mensagem **Parar Programação Automática?** será exibida. Selecione **Sim** pressionando o botão **▲** ou **▼** e então pressione **ENTER** [↵].

☐ Guia Completo / Mini Guia

As informações do Guia de programação eletrônica (EPG - Electronic Programme Guide) são fornecidas pelas redes responsáveis pela transmissão. Indicações de programas podem aparecer em branco ou estar desatualizadas devido à informações transmitidas em um determinado canal. A exibição será atualizada de forma dinâmica à medida que novas informações forem disponibilizadas.

- ☑ Também é possível exibir o menu do guia simplesmente pressionando o botão **GUIDE**. (Para configurar o **Guia Padrão**, consulte as descrições.)

■ Guia Completo

Exibe as informações da programação como segmentos sequenciais de Uma hora. São exibidas duas horas de informações sobre a programação, mas os horários anteriores e posteriores podem ser pesquisados.

■ Mini Guia

As informações de cada programa são exibidas em cada linha da tela do Mini-guia do canal atual a partir do programa atual, de acordo com a ordem de início dos programas.

☐ Guia Padrão → Mini Guia / Guia Completo

É possível decidir se deseja exibir o **Mini Guia** ou o **Guia Completo** quando o botão **GUIDE** do controle remoto for pressionado.

☐ Lista de Canais

Para procedimentos detalhados sobre a utilização da **Lista de Canais**, consulte as instruções de 'Gerenciamento de Canais'. (consulte a páginas 17~18)

- ☑ Você pode selecionar essas opções pressionando o botão **CH LIST** no controle remoto.

☐ Sintonia Canais (apenas canais analógicos)

Utilize a Sintonia Fina para ajustar manualmente um canal particular para uma ótima recepção.

- ☑ Se você não armazenar na memória o canal com a Sintonia Canais ajustada, as alterações não serão salvas.
- ☑ "*" aparecerá junto ao nome dos canais com Sintonia Canais.
- ☑ Para restaurar a configuração de Sintonia Canais, pressione o botão **▼** para selecionar **Redefinir** e então pressione **ENTER** [↵].

☐ LNA (Low Noise Amplifier) → Ligado / Desligado

Se a TV estiver operando em uma área de sinal fraco, a função LNA poderá melhorar a recepção (um pré-amplificador de baixo ruído aumenta o sinal de entrada).

- ☑ LNA funciona somente quando a antena é definida em **Ar** ou **Cabo**.
- ☑ A definição de LNA deve ser feita separadamente para cada canal.
- ☑ Se a imagem apresentar ruído com a função LNA definida como **Ligado**, selecione **Desligado**.

☐ Sistema de Cor → Auto / PAL-M / PAL-N / NTSC

Selecione um sistema de cor adequado aos sinais de entrada de vídeo.

Esta função está disponível somente no modo de TV analógica.

Using the Integral / Mini Guia



Para...	Então...
Assistir a um programa da lista EPG	Selecione um programa pressionando os botões ▲, ▼, ◀, ▶.
Sair do guia	Pressione o azul verde.
Se o programa seguinte estiver selecionado, ele estará marcado com a exibição do ícone de relógio. Se o botão ENTER <input checked="" type="checkbox"/> for pressionado mais uma vez, pressione o botão ◀, ▶ para selecionar Canc. Agendamentos e a marcação será cancelada, com desaparecimento do ícone de relógio.	
Visualizar informações de programação	Selecione o programa de sua preferência pressionando os botões ▲, ▼, ◀, ▶. Depois pressione o botão INFO quando o programa escolhido estiver destacado. O nome do programa aparece na parte superior do centro da tela.
Clique no botão INFO para visualizar informações detalhadas. O número do canal, tempo de execução, barra de status, nível de supervisão dos pais, informações de qualidade de vídeo (HD / SD), modos de som, legenda ou teletexto, idiomas da legenda ou teletexto e um breve resumo do programa destacado estão incluídos nas informações detalhadas. "..." aparecerá se o resumo for longo.	
Alternar entre Mini Guia e Guia Completo	Pressione várias vezes o botão vermelho.
Em Guia completo Mova para trás rapidamente (24 horas). Mova para frente rapidamente (24 horas).	Pressione várias vezes o botão verde. Pressione várias vezes o botão amarelo.
Em Mini-guia Exibe a página anterior rapidamente. Exibe a próxima página rapidamente.	Pressione o botão verde. Pressione o Amarelo verde.

Gerenciamento de Canais

Utilize esse menu para adicionar/excluir ou definir os canais favoritos e usar o guia de programação no caso de transmissão digital.

■ Todos os Canais

Exibe todos os canais disponíveis no momento.

■ Canais Adicionados

Exibe todos os canais adicionados.






■ Favorito

Exibe todos os canais favoritos.

☞ Para selecionar os canais favoritos definidos por você, pressione o botão **FAV.CH** no controle remoto.

■ Programado

Exibe toda a programação atual reservada.

- ☑ Selecione um canal na tela **Todos os Canais**, **Canais Adicionados** ou **Favorito** pressionando os botões ▲ / ▼ e, em seguida, o botão **ENTER** . Então, será possível assistir o canal selecionado.
- ☑ Uso dos botões coloridos com a Lista de Canais
 - Vermelho (**Antena**): Alterna entre **Ar** ou **Cabo**.
 - Verde (**Zoom**): Amplia ou diminui o número de um canal.
 - Amarelo (**Selecionar**): Seleciona várias listas de canais. É possível realizar as funções adicionar/excluir ou adicionar aos Favoritos/excluir dos Favoritos para vários canais ao mesmo tempo. Selecione os canais desejados e pressione o botão amarelo para definir todos os canais selecionados ao mesmo tempo. A indicação ✓ será exibida à esquerda dos canais selecionados.
 - **TOOLS (Ferramentas)**: Exibe os menus **Adicionar** (ou **Apagar**), **Adicionar a Favoritos** (ou **Excluir de Favoritos**), **Bloquear** (ou **Desbloqueio**), **Visual. temp.**, **Edição do nome do canal**, **Selecionar Tudo** (ou **Desmarcar Tudo**) e **Prog. Automática** (os menus de opção podem ser diferentes dependendo da situação).
- ☑ Ícones de exibição de status de canal
 - ✓ : um canal selecionado pressionando o botão amarelo.
 -  : um programa sendo transmitido no momento.
 -  : um canal definido como Favorito.
 -  : um programa reservado.
 -  : um canal bloqueado.



Menu de opções de Lista de Canais (em Todos os Canais / Canais Adicionados / Favorito)

- ☑ Pressione o botão **TOOLS** para usar o menu de opções.
- ☑ Os itens do menu de opções podem ser diferentes dependendo do status do canal.

■ Adicionar / Apagar

Você pode adicionar ou excluir um canal para exibir somente os canais desejados.

☑ Todos os canais excluídos serão exibidos no menu **Todos os Canais**.

☑ Um canal acinzentado indica um canal excluído.

☑ O menu **Adicionar** é exibido apenas para os canais excluídos.

☑ Também é possível excluir um canal do menu **Canais Adicionados** ou **Favorito** utilizando o mesmo procedimento.

■ Adicionar a Favoritos / Excluir de Favoritos

É possível definir canais aos quais você assiste com frequência como Favoritos.

☞ Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Também é possível definir o acréscimo aos (ou exclusão dos) Favoritos selecionando **Ferramentas** → **Adicionar a Favoritos** (ou **Excluir de Favoritos**).


☑ O símbolo '♥' será exibido e o canal será definido como um favorito.

☑ Todos os canais favoritos serão exibidos no menu **Favorito**.




■ Bloquear / Desbloqueio

É possível bloquear um canal para que não seja possível selecionar e visualizar o canal.

 Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Você também pode configurar os canais que estão bloqueados (desbloqueados) no momento, selecionando **Ferramentas** → **Bloquear Canal Atual** (ou **Desbloquear Canal Atual**).

 Esta função fica disponível apenas quando **Bloqueio de Canais** está definida como **Ligado** (consultar página 28).

 A tela de entrada da senha aparecerá. Digite sua senha de 4 dígitos.

 A senha padrão de uma TV nova é '0-0-0-0'. É possível alterar a senha

 selecionando Mudar Senha no menu.

 O símbolo "🔒" será exibido e o canal será bloqueado.

■ Visual. temp.

Caso você reserve um programa que deseja assistir, o canal será mudado automaticamente para o canal reservado na Lista de canais, mesmo que esteja assistindo outro canal. Para reservar um programa, primeiro é necessário definir o horário atual. (consulte a página 27)

 Apenas canais memorizados podem ser reservados.

 É possível ajustar diretamente canal, mês, dia, ano, hora e minuto pressionando as teclas numéricas do controle remoto.


 A reserva de um programa será exibida no menu **Programado**.

 Guia de programação digital e Visualização de reservas

Quando um canal digital é selecionado e você pressiona o botão ►, o Guia de programação desse canal será exibido. É possível reservar um programa de acordo com os procedimentos descritos acima.

■ Edição do nome do canal (apenas para canais analógicos)


É possível dar nomes aos canais para que seus prefixos sejam exibidos sempre que o canal for selecionado.

 Os nomes de canais de transmissão digital recebem seus prefixos automaticamente, não sendo possível alterá-los.


■ Selecionar Tudo / Desmarcar Tudo

● **Selecionar Tudo:** é possível selecionar todos os canais na lista de canais.

● **Desmarcar Tudo:** é possível retirar a seleção de todos os canais selecionados.

 É possível selecionar **Desmarcar Tudo** apenas quando já há um canal selecionado.

■ Prog. Automática

 Para procedimentos detalhados sobre como usar **Prog. Automática**. (consulte a página 15)

Menu de opções de Lista de Canais (em Programado)

É possível visualizar, modificar ou excluir uma reserva.

 Pressione o botão **TOOLS** para usar o menu de opções.

■ Alterar Info

Selecione para alterar uma reserva de visualização.

■ Canc. Agendamentos

Selecione para cancelar uma reserva de visualização.

■ Informação

Selecione para visualizar uma reserva de visualização. (Também é possível alterar as informações de reserva.)

■ Selecionar Tudo

Selecione todos os programas reservados.

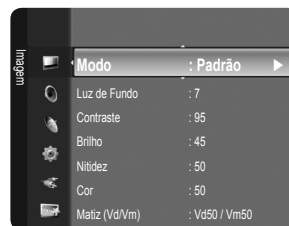


Menu de Imagem

❑ Modo

Você pode selecionar o tipo de imagem que melhor corresponde aos seus requisitos de visualização.

☞ Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Também é possível definir o modo de imagem selecionando **Ferramentas** → **Modo de Imagem**.



■ Dinâmico

Seleciona a imagem para maior definição em uma sala clara.

■ Padrão

Seleciona a imagem para a exibição otimizada em um ambiente normal.

■ Filme

Seleciona a imagem para a exibição de filmes em uma sala escura.

❑ Luz de Fundo / Contraste / Brilho / Nitidez / Cor / Matiz (Vd/Vm)

A TV tem diversas opções de definições que permitem controlar a qualidade da imagem.

- **Luz de Fundo:** Ajusta o brilho da luz de fundo do LCD.
- **Contraste:** Ajusta o nível de contraste da imagem.
- **Brilho:** Ajusta o nível de brilho da imagem
- **Nitidez:** Ajusta a definição da borda da imagem.
- **Cor:** Ajusta a saturação de cor da imagem.
- **Matiz (Vd/Vm):** Ajusta a matiz da cor da imagem.

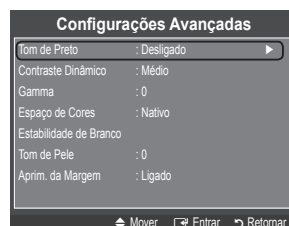


- ☑ Quando você faz alterações em **Luz de Fundo**, **Contraste**, **Brilho**, **Nitidez**, **Cor** ou **Matiz (Vd/Vm)**, o Menu será ajustado de forma correspondente.
- ☑ No modo PC, é possível fazer alterações apenas em **Luz de Fundo**, **Contraste** e **Brilho**.
- ☑ As definições podem ser ajustadas separadamente para cada entrada da TV.
- ☑ A energia consumida durante o uso pode ser reduzida de maneira expressiva se o nível de brilho da imagem for reduzido; isto irá reduzir o custo geral de funcionamento.

❑ Configurações Avançadas

A nova TV Samsung permite que você crie muito mais definições de imagem do que os modelos anteriores.

- ☑ **Configurações Avançadas** disponíveis no modo **Padrão** ou **Filme**.
- ☑ No modo PC, é possível fazer alterações apenas em **Contraste Dinâmico**, **Gamma** e **Estabilidade de Branco** nos itens de **Configurações Avançadas**.



■ Tom de Preto → Desligado / Escuro / Escurecido / Mais escuro

Você pode selecionar o nível de preto para ajustar a profundidade da tela.

■ Contraste Dinâmico → Desligado / Baixo / Médio / Alto

Você pode ajustar o contraste da tela para obter um excelente contraste.

■ Gamma

Você pode ajustar a intensidade da cor principal (vermelho, verde, azul).

■ Espaço de Cores

O espaço de cores é uma matriz de cores composta pelas cores vermelho, verde e azul. Selecione o espaço de cores de sua preferência e experimente as cores mais naturais.

- **Auto:** O espaço de cores automático faz o ajuste automático à tonalidade de cor mais natural com base em fontes de programas.
- **Nativo:** O espaço de cores Nativo oferece tonalidades de cores intensas e sofisticadas.
- **Personalizado:** Ajusta a gama de cores de acordo com a sua preferência.
- ☑ A alteração do valor de ajuste atualizará a tela ajustada.
- ☑ As definições podem ser ajustadas e armazenadas para da entrada da TV. Por exemplo, se você tiver um DVD player conectado a entrada HDMI 1 e ela estiver selecionada no momento, as configurações e ajustes serão salvos para a entrada HDMI 1.
 - **Cor: Vermelho, Verde, Azul, Amarelo, Ciano ou Magenta**
 - ☑ **Cor** é disponibilizada quando o **Espaço de Cores** está definido como **Personalizado**.
 - ☑ Em **Cor**, você pode ajustar os valores RGB para a cor selecionada.
 - ☑ Para restaurar o valor RGB ajustado, selecione **Restaurar Padrões**.
 - **Vermelho:** Ajusta o nível de saturação de vermelho da cor selecionada.
 - **Verde:** Ajusta o nível de saturação de verde da cor selecionada.
 - **Azul:** Ajusta o nível de saturação de azul da cor selecionada.
 - **Restaurar Padrões:** Restaura o espaço de cores para os valores padrão.

■ Estabilidade de Branco

Você pode ajustar a temperatura da cor para obter imagens com cores mais naturais.

- **Verm.-Offset:** Ajusta a tonalidade da cor vermelha.
- **Verde-Offset:** Ajusta a tonalidade da cor verde.
- **Azul-Offset:** Ajusta a tonalidade da cor azul.
- **Verm.-Gain:** Ajusta o brilho da cor vermelha.
- **Verde-Gain:** Ajusta o brilho da cor verde.
- **Azul-Gain:** Ajusta o brilho da cor azul.
- **Restaurar Padrões:** A estabilidade de branco estabelecida anteriormente retornará aos padrões de fábrica.

■ Tom de Pele

Você pode enfatizar o 'tonalidade de pele' na imagem.

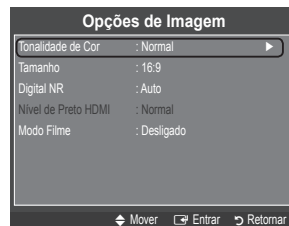
- ☑ A alteração do valor de ajuste atualizará a tela ajustada.

■ Aprim. da Margem → Desligado / Ligado

Você pode destacar as margens de um objeto da imagem.

❑ Opções de Imagem

- ☑ No modo PC, você pode fazer ajustes somente em **Tonalidade de Cor** e **Tamanho** dentre os itens em Opções de imagem.



■ Tonalidade de Cor → Frio / Normal / Quente1 / Quente2

- ☑ **Quente1** ou **Quente2** são ativados apenas quando o modo de imagem for **Filme**.
- ☑ As definições podem ser ajustadas separadamente para cada entrada da TV.

■ Tamanho

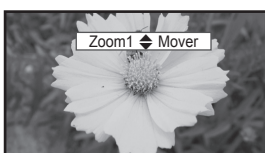
É possível que você queira alterar o tamanho da imagem na tela. A sua TV vem com várias opções de tamanho de tela, projetadas para o melhor desempenho com tipos específicos de entrada de vídeo. Seu receptor de cabo/satélite também pode ter a própria configuração de tamanhos de tela. Geralmente, você deve visualizar a TV no modo 16:9 o máximo possível.

- ☑ Você também pode pressionar o botão **P.SIZE** no controle remoto para alterar o tamanho da imagem.

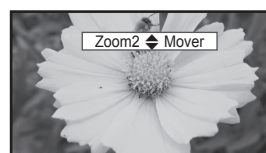
- **16:9**: Ajusta a imagem para o modo amplo 16:9.
- **Zoom1**: Amplia o tamanho da imagem na tela.
- **Zoom2**: Amplia o tamanho da tela mais do que o modo **Zoom1**.
- **Ajuste Amplo**: Amplia a proporção da imagem para que ocupe toda a tela.
- **4:3**: Ajusta a imagem para o modo normal 4:3.
- **Ajuste à Tela**: Use esta função para ver a imagem inteira sem cortes, quando houver a entrada dos sinais HDMI (720p/1080i), Component (1080i) ou DTV (1080i).



16:9



Zoom1



Zoom2



Ajuste Amplo



4:3



Ajuste à Tela

- ☑ A retenção da imagem temporária pode ocorrer ao visualizar uma imagem estática no aparelho por mais de duas horas.
- ☑ Após selecionar **Zoom1**, **Zoom2** ou **Ajuste Amplo**: Pressione o botão ► para selecionar **Posição**, e em seguida, pressione **ENTER** [↵]. Pressione o botão ▲ ou ▼ para mover a imagem para cima e para baixo. Em seguida, pressione o botão **ENTER** [↵]. Pressione o botão ► para selecionar **Tamanho**, e em seguida, pressione **ENTER** [↵]. Pressione o botão ▲ ou ▼ para aumentar ou reduzir o tamanho da imagem no sentido vertical. Em seguida, pressione o botão **ENTER** [↵].
- ☑ Após selecionar **Ajuste à Tela** no modo HDMI (1080i) ou Componente (1080i), talvez seja necessário centralizar a imagem: Pressione o botão ◀ ou ▶ para selecionar **Posição**, e em seguida, pressione **ENTER** [↵]. Pressione os botões ▲, ▼, ◀ ou ▶ para mover a imagem.
 - **Restaurar Padrões**: Pressione o botão ◀ ou ▶ para selecionar **Restaurar Padrões**, e em seguida, pressione **ENTER** [↵]. A configuração pode ser iniciada.
- ☑ As definições podem ser ajustadas separadamente para cada entrada da TV.

Fonte de entrada	Tam. Imagem
ATV, AV, Component (480i, 480p)	16:9, Zoom1, Zoom2, 4:3
DTV(1080i), Component (1080i), HDMI (720p, 1080i)	16:9, 4:3, Ajuste Amplo, Ajuste à tela
PC	16:9, 4:3

■ **Digital NR** → **Desligado / Baixo / Médio / Alto / Auto**

Se o sinal de transmissão recebido pela TV estiver fraco, você poderá ativar o recurso de redução de ruído digital para ajudar a reduzir qualquer imagem fantasma e estática na tela.

Quando o sinal está fraco, selecione uma das outras opções até que a melhor qualidade de imagem seja exibida.

■ **Nível de Preto HDMI** → **Normal / Baixo**

Você pode selecionar o nível de preto para ajustar a profundidade da tela.

Esta função somente está ativa quando um dispositivo externo estiver conectado à TV via HDMI. A função **Nível de Preto HDMI** pode não ser compatível com todos os dispositivos externos.

■ **Modo Filme** → **Desligado / Auto**

A TV pode ser configurada para detectar e processar automaticamente sinais de vídeo de todas as fontes e ajustar a imagem para obter a melhor qualidade.

Modo Filme é suportado em TV, Vídeo, Componente (480i / 1080i) e HDMI (480i/1080i).

□ **Restaurar imagem** → **Restaurar modo de imagem / Cancelar**

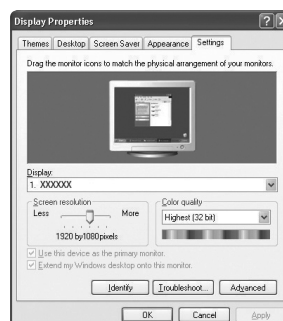
Restaura todas as configurações de imagem para os valores padrão.

Rest. o Modo de Imagem: Os valores do Modo de Imagem atual retornam às configurações padrão.

Configurando o software do PC (baseado no Windows XP)

Os ajustes de exibição do Windows para um computador padrão são exibidos a seguir. As telas do PC provavelmente serão diferentes, dependendo da versão particular do Windows e da placa de vídeo. Entretanto, as mesmas informações de configuração básica serão aplicadas na maioria dos casos, ainda que as telas sejam diferentes. (Do contrário, entre em contato com o fabricante do computador ou com o representante da Samsung.)

1. Primeiro, clique em 'Painel de controle', no menu Iniciar do Windows.
2. Quando a janela do painel de controle for exibida, clique em 'Aparências e Temas' e uma caixa de diálogo será exibida.
3. Quando a janela do painel de controle for exibida, clique em 'Exibir' e uma caixa de diálogo será exibida.
4. Selecione a guia 'Configurações' na caixa de diálogo.
 - A configuração de tamanho correta (resolução) - Melhor: 1360 X 768 pixels
 - Se existir uma opção de frequência vertical na caixa de diálogo de ajustes do display, o valor correto é '60' ou '60 Hz'. Do contrário, basta clicar em 'OK' e sair da caixa de diálogo.



Modos de visualização

Se o sinal do sistema for igual ao modo de sinal padrão, a tela se ajusta automaticamente. Se o sinal do sistema não for igual ao modo de sinal padrão, ajuste o modo consultando o guia do usuário da placa de vídeo; caso contrário, poderá não haver vídeo. Para os modos de visualização da próxima página, a imagem da tela foi otimizada durante a fabricação.

■ D-Sub e HDMI/DVI Entrada

- Ao usar uma conexão a cabo HDMI/DVI, será necessário utilizar o conector **HDMI IN 1(DVI)**.

Modo	Resolução	Frequência horizontal (kHz)	Frequência vertical (Hz)	Frequência (MHz)	Polaridade Sincr (H/V)
IBM	640 x 350	31,469	70,086	25,175	+/-
	720 x 400	31,469	70,087	28,322	-/+
MAC	640 x 480	35,000	66,667	30,240	-/-
	832 x 624	49,726	74,551	57,284	-/-
VESA CVT	720 x 576	35,910	59,950	32,750	-/+
	1280 x 720	44,772	59,855	74,500	-/+
	1280 x 720	56,456	74,777	95,750	-/+
VESA DMT	640 x 480	31,469	59,940	25,175	-/-
	640 x 480	37,500	75,000	31,500	-/-
	640 x 480	37,861	72,809	31,500	-/-
	800 x 600	37,879	60,317	40,000	+/+
	800 x 600	46,875	75,000	49,500	+/+
	800 x 600	48,077	72,188	50,000	+/+
	1024 x 768	48,363	60,004	65,000	-/-
	1024 x 768	56,476	70,069	75,000	-/-
	1024 x 768	60,023	75,029	78,750	+/+
	1360 x 768	47,712	60,015	85,500	+/+
VESA GTF	1280 x 720	52,500	70,000	89,040	-/+

Configuração da TV com o seu PC

Predefinição: Pressione o botão **SOURCE** para selecionar o modo PC.

Auto Ajuste

Utilize a função Auto Ajuste para que a TV ajuste automaticamente os sinais de vídeo que recebe. Esta função também faz a sintonia fina automática das configurações e ajusta os valores e as posições da frequência.

Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Também é possível definir o Ajuste automático selecionando **Ferramentas** → **Auto Ajuste**.

Esta função não funciona no modo DVI-Digital.



Tela

■ Grosso / Ajuste Fino

O propósito de ajustar a qualidade da imagem é de remover ou reduzir interferências da imagem. Se a interferência não for removida somente com a sintonia fina, então ajuste a frequência o melhor possível (**Grosso**) e realize novamente a sintonia fina. Após ter reduzido a interferência, ajuste novamente a imagem de modo que ela fique centralizada na tela.

■ Posição do PC

Ajuste o posicionamento de tela do PC se ela não se encaixar na tela da TV. Pressione o botão ▲ ou ▼ para ajustar a posição vertical. Pressione o botão ◀ ou ▶ para ajustar a posição horizontal.

■ Image Reset

É possível retornar todos os ajustes de imagem aos valores definidos de fábrica.

Menu de Som

❑ Modo → Padrão / Música / Filme / Voz Destacada / Personalizado

☞ Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Também é possível definir o modo de imagem selecionando **Ferramentas** → **Modo de Som**.

- **Padrão:** Seleciona o modo de som padrão.
- **Música:** Destaca a música sobre as vozes.
- **Filme:** Fornece o melhor som para filmes.
- **Voz Destacada:** Deixa a voz em destaque em relação aos outros sons.
- **Personalizado:** Retorna às configurações de som personalizadas.



❑ Equalizador

Você pode ajustar as definições de som de acordo com a sua preferência.

- **Modo:** Seleciona o modo de som entre as configurações predefinidas.
- **Balanco Esq/Dir:** Ajusta o equilíbrio entre o alto-falante direito e esquerdo.
- **100Hz, 300Hz, 1KHz, 3KHz, 10KHz** (Ajuste de largura de banda): Para ajustar o nível de diferentes frequências de largura de banda.
- **Restaurar Padrões:** Restaura as configurações de equalizador para os valores padrão.

❑ SRS TruSurround HD → Desligado / Ligado

TruSurround HD é uma tecnologia patenteada SRS que resolve o problema de reprodução de conteúdo em múltiplos canais 5.1 em dois alto-falantes. A tecnologia TruSurround possibilita uma fascinante experiência de som ambiental virtual em qualquer sistema de reprodução com dois alto-falantes, incluindo os alto-falantes internos da televisão. É totalmente compatível com todos os formatos multicanais.

❑ Idioma de Áudio

É possível alterar o valor padrão de idiomas de áudio. Exibe as informações de idioma para o fluxo de entrada.

- ☑ Ao ver um canal digital, é possível selecionar esta função.
- ☑ Só é possível selecionar um dos idiomas que estão sendo transmitidos.

❑ Som de Várias Faixas (MTS) (apenas para canais analógicos)

☞ Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. [Eng]You can also set the Multi-Track Sound by selecting **Tools** → **Multi-Track Sound**.

- **Mono:** Selecione para canais transmitidos em mono, ou se houver algum problema na recepção do sinal estéreo.
- **Estéreo:** Selecione para canais transmitidos em estéreo.
- **SAP:** Selecione para ouvir o Programa de áudio separado; geralmente, trata-se da tradução de um idioma estrangeiro.
- ☑ **Som de Várias Faixas** está disponível apenas no modo TV analógica.
- ☑ Dependendo do programa específico sendo transmitido, é possível ouvir nos modos **Mono**, **Estéreo** ou **SAP**.

❑ Volume Automático → Desligado / Ligado

Cada estação transmissora tem a sua condição própria de sinal e não é fácil ajustar o volume sempre que se muda de canal. Este recurso permite ajustar automaticamente o volume do canal desejado, diminuindo a saída de som quando o sinal de modulação estiver alto, ou aumentando a saída de som quando o sinal de modulação estiver baixo.

❑ Selecionar Alto-falante

Quando você assistir TV com ele conectado a um home theater, desligue os alto-falantes da TV para que você possa ouvir melhor o som que sai dos alto-falantes do home theater (externo)

- **Alto-falante Ext:** Utilizado para ouvir o som dos alto-falantes externos (home theater).
- **Alto-falante TV:** Utilizado para ouvir o som dos alto-falantes da TV.
- ☑ Caso você selecione **Alto-falante Ext** no menu **Selecionar Alto-falante**, as configurações de som serão limitadas.

- Os botões de volume e **MUTE** não funcionam quando **Selecionar Alto-falante** estiver definida como **Alto-falante Ext.** Defina o volume no seu home theater.

	Alto-falantes internos da TV	Áudio externo (Óptico, E/D externo) para o sistema de som
	RF, AV, Componente, PC, HDMI	RF, AV, Componente, PC, HDMI
Alto-falante TV	Saída do alto-falante	Saída do alto-falante
Alto-falante Ext	Mudo	Saída do alto-falante
Video sem Sinal	Mudo	Mudo

Restauração de som → Restaurar Tudo / Rest. o Modo de Som / Cancelar

É possível restaurar as configurações de som aos padrões de fábrica.

- Rest. o Modo de Som:** Os valores do Modo de Som atual retornam às configurações padrão.

Conectando os fones de ouvido (Vendido separadamente)

Você pode conectar um conjunto de fones de ouvido ao seu aparelho se quiser assistir a um programa de TV sem incomodar as outras pessoas que estão na mesma sala.

- A utilização da função de áudio fica restrita ao conectar fones de ouvido à TV.
- O uso prolongado de fones de ouvido em um volume alto pode prejudicar sua audição.
- Você não ouvirá o som dos alto-falantes quando conectar os fones de ouvido à TV.
- O volume do fone de ouvido e da TV são ajustados separadamente.

Menu de Configuração

❑ Idioma

Você pode configurar o idioma do menu.

❑ Tempo

■ Relógio

É necessário configurar o relógio para se poder usar os diversos recursos de Temporizador da TV.

A hora aparecerá sempre que você pressionar o botão **INFO**.

Se o cabo de força for desconectado, será necessário definir novamente no relógio.

● Modo Relógio

É possível ajustar a hora atual de modo manual ou automático.

– **Auto:** Defina a hora atual de modo automático usando o horário recebido da transmissão digital.

– **Manual:** Defina a hora atual com um horário especificado manualmente.

Dependendo da estação e do sinal da transmissora, a hora automática pode não ser ajustada corretamente. Se isso ocorrer, ajuste a hora manualmente.

A antena ou cabo deve estar conectado para que seja possível ajustar a hora automaticamente.

● Definição do Relógio

O horário pode ser configurado manualmente.

Esta função é disponibilizada quando o **Modo Relógio** é definido como **Manual**.

É possível ajustar diretamente mês, dia, ano, hora e minuto, pressionando as teclas numéricas do controle remoto.

● Fuso Horário

Selecione seu fuso horário.

Esta função é disponibilizada quando o **Modo Relógio** é definido como **Auto**.

■ Sleep Timer

O sleep timer desliga automaticamente a TV depois de um tempo predefinido (de 30, 60, 90, 120, 150 e 180 minutos).

Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. Também é possível definir o sleep timer selecionando **Ferramentas** → **Sleep Timer**.

Para cancelar a função **Sleep Timer**, selecione **Desligado**.

■ Temporizador 1 / Temporizador 2 / Temporizador 3

Três diferentes configurações de temporizadores podem ser realizadas. É preciso ajustar o relógio primeiro.

● **Hora de Ligar:** Defina hora, minuto, am/pm e Ativado/Desativado (Para ativar o temporizador com a configuração correspondente, configure para **Ativado**.)


● **Hora de Desligar:** Defina hora, minuto, am/pm e Ativado/Desativado (Para ativar o temporizador com a configuração correspondente, configure para **Ativado**.)

● **Volume:** Selecione o nível de volume desejado.

● **Antena:** Selecione ar ou cabo.

● **Canal:** Selecione o canal desejado.

● **Repetir:** Selecione **Uma vez**, **Diário**, **Seg-Sex**, **Seg-Sáb**, **Sáb-Dom** ou **Manual**.

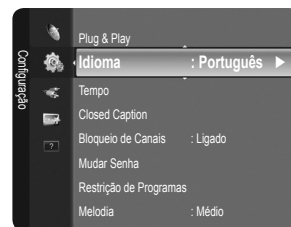
Quando a opção **Manual** é selecionada, pressione o botão ► para selecionar o dia desejado da semana. Pressione o botão **ENTER**  sobre o dia desejado e o indicador ✓ será exibido.

Defina diretamente a hora e os minutos, pressionando os botões numéricos no controle remoto.

Desligamento automático

Ao definir o temporizador como **Ligado**, sua TV será desligada se você não operar o controle durante as próximas 3 horas após o cronômetro tê-lo ligado.

Esta função está disponível somente no modo temporizador **Ligado** e impede o superaquecimento que pode ocorrer se a TV permanecer ligada por muito tempo.



❑ Closed Caption (mensagens de texto na tela)

■ Closed Caption → Desligado / Ligado

É possível ligar ou desligar a função Closed Caption. Caso a função Closed Caption não esteja disponível, as mensagens não serão exibidas na tela.

- ☑ Pressione o botão **CC** no controle remoto para ligar ou desligar a função Closed Caption.
- ☑ O recurso Closed Caption não funciona nos modos Componente, PC ou HDMI.

■ Modo de Legenda

É possível selecionar o Modo de Legenda desejado.

- ☑ A disponibilidade das legendas depende do programa que está sendo transmitido.
- **Padrão / CC1~CC4 / Texto1~Texto4** (apenas canais analógicos)
A função de legendas analógicas funciona tanto no modo de canal de TV analógico quanto quando um sinal é fornecido de um dispositivo externo à TV. (Dependendo do sinal da transmissão, a função Legenda analógica pode funcionar em canais digitais.)

❑ Bloqueio de Canais → Desligado / Ligado

Este recurso permite que você impeça usuários não autorizados, como crianças, de assistirem programas inadequados ao ativar o mute do vídeo e do áudio.

- ☑ Antes de a tela de configuração aparecer, a tela de entrada da senha aparecerá. Digite sua senha de 4 dígitos.
- ☑ A senha padrão de uma TV nova é '0-0-0-0'. Você poderá alterar a senha selecionando **Mudar Senha** no menu.
- ☑ Você pode bloquear alguns canais na **Lista de Canais**. (consulte a página 18)
- ☑ **Bloqueio de Canais** está disponível somente no modo TV.

❑ Mudar Senha

Você poderá alterar seu número de ID pessoal necessário para configurar a TV.

- ☑ Antes de a tela de configuração aparecer, a tela de entrada da senha aparecerá. Digite seu número PIN de 4 dígitos.
- ☑ A senha padrão de uma TV nova é '0-0-0-0'.
- ☑ Se você esquecer o código PIN, pressione os botões do controle remoto, na sequência a seguir, para redefinir o PIN ao número inicial 0-0-0-0: **POWER** (Desligado), **MUTE**, 8, 2, 4, **POWER** (Ligado).

❑ Restrição de Programas

Este recurso permite que você impeça que usuários não autorizados, como crianças, assistam programas inadequados por meio de um código PIN (Número de identificação pessoal) de 4 dígitos definido por você.

- ☑ Antes de a tela de configuração aparecer, a tela de entrada da senha aparecerá. Digite seu número PIN de 4 dígitos.
- ☑ A senha padrão de uma TV nova é '0-0-0-0'. Você poderá alterar a senha selecionando **Mudar Senha** no menu.
- ☑ Quando as classificações de país estão definidas, o símbolo '🔒' é exibido.
- ☑ **Perm. Tudo**: Pressione para desbloquear todas as classificações de programação da TV.
Bloq. Tudo: Pressione para bloquear todas as classificações de programação da TV.

❑ Melodia → Desligada / Baixa / Média / Alta

É possível fazer com que uma melodia seja tocada quando a TV for ligada ou desligada.

- ☑ A melodia não é reproduzida.
 - Quando a TV não emite nenhum som porque o botão **MUTE** foi pressionado.
 - Quando a TV não emitir nenhum som porque o volume foi reduzido ao nível mínimo com o botão **VOL -**.
 - Quando a TV é desligada pela função Sleep Timer.

❑ **Modo Jogo → Desligado / Ligado**

Ao se conectar a um console de videogame como PlayStation™ ou Xbox™, você poderá ter uma experiência mais real selecionando o menu jogo.

☑ Restrições do Modo Jogo (cuidado)

- Para desconectar o console de jogo e conectar outro dispositivo externo, ajuste **Modo Jogo** para **Desligado** no menu de configuração.
- Se você exibir o menu da TV no **Modo Jogo**, a tela oscilará levemente.

☑ **Modo Jogo** não está disponível no modo PC e TV regular.

☑ Se a imagem estiver ruim quando o dispositivo externo estiver conectado à TV, verifique se o **Modo Jogo** está **Ligado**. Defina o **Modo Jogo** como **Desligado** e conecte os dispositivos externos.

☑ Se o **Modo Jogo** estiver Ligado:

- O Modo de Imagem muda automaticamente para **Padrão** e não pode ser alterado.
- O Modo de Som muda automaticamente para **Personalizado** e não pode ser alterado. Ajuste o som usando o equalizador.
- A função Restaurar som está ativada. Selecione a função Restaurar depois de ajustar as configurações do equalizador se desejar restaurar as configurações de fábrica.

❑ **Economia de Energia → Desligada / Baixa / Média / Alta / Automático**

Este recurso ajusta o brilho da TV para reduzir o consumo de energia. Ao assistir TV à noite, defina a opção de modo **Economia de Energia** para **Alta** para reduzir o cansaço visual e também economizar energia.

☑ Pressione o botão **TOOLS** para exibir o menu **Ferramentas**. [Eng]You can also set the Energy Saving by selecting **Tools** → **Energy Saving**.

❑ **Sistema de Cor AV → Auto / PAL-M / PAL-N / NTSC**

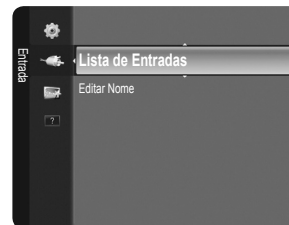
Normalmente, a TV pode receber imagem e som de boa qualidade quando está no modo **Auto**. Este modo detecta automaticamente o sistema de cores do sinal. Em caso de recepção de sinal com cores insatisfatórias, selecione o modo **Sistema de Cor AV** como PAL-M, PAL-N ou NTSC.

Menu de Entrada

❑ Lista de Entradas

Use para selecionar a TV ou outras fontes de entrada externa como DVD / Blu-Ray players ou cabos/receptores de satélite (Set-Top Box) conectadas à TV. Use para selecionar a fonte de entrada escolhida.

- ☑ Pressione o botão **SOURCE** no controle remoto para visualizar uma fonte externa de sinal.



■ TV / AV1 / AV2 / Componente1 / Componente2 / PC / HDMI1/DVI / HDMI2 / HDMI3

- ☑ Só é possível escolher entre os dispositivos externos que estão conectados à TV. Em **Lista de Entradas**, as entradas conectadas estarão destacadas e posicionadas na parte superior. As entradas não conectadas serão colocadas na parte inferior.
- ☑ O PC permanece sempre ativo
- ☑ Uso dos botões coloridos do controle remoto com a Lista de fontes
 - **TOOLS (Ferramentas)**: Exibe os menus **Editar Nome** e **Informação**.

❑ Editar Nome

■ VCR / DVD / Sinal Cabo / Sinal Satélite / PVR STB / Receptor AV / Jogo / Filmadora / PC / DVI / DVI PC / TV / IPTV / Blu-ray / HD DVD / DMA

Nomeie o dispositivo conectado às entradas para facilitar a seleção de sua fonte de entrada.

- ☑ Quando um PC com resolução de 1360 x 768@60Hz é conectado à porta **HDMI IN 1(DVI)**, é necessário definir o modo **HDMI1/DVI** como **DVI PC** em **Editar Nome**, no modo **Entrada**.
- ☑ Ao conectar um cabo HDMI/DVI à porta **HDMI IN 1(DVI)**, você deve ajustar o modo **HDMI1/DVI** para **DVI** ou **DVI PC** em **Editar Nome** do modo **Entrada**. Neste caso, é necessária uma conexão de som separada.

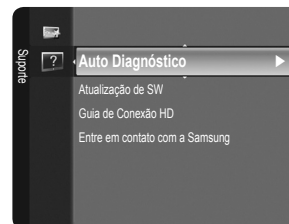
Menu de suporte

❑ Auto Diagnóstico

■ Teste de Imagem

Se achar que há um problema com a imagem, realize o teste de imagem. Verifique o padrão de cor na tela para ver se o problema continua.

- **Sim**: Caso o padrão de teste não apareça ou haja ruído no padrão de teste, selecione **Sim**. Pode haver um problema com a TV. Entre em contato com a Central de Atendimento da Samsung para obter assistência.
- **Não**: Caso o padrão de teste seja exibido corretamente, selecione **Não**. Pode haver um problema com o seu equipamento externo. Verifique suas conexões. Se o problema ainda persistir, consulte o manual do usuário do dispositivo externo.



■ Teste de Som

Se achar que há um problema com o som, realize o teste de som. É possível verificar o som reproduzindo uma melodia integrada na TV.

- ☑ Caso não ouça nenhum som dos alto-falantes da TV, antes de realizar o teste de som, verifique se **Selecionar Alto-falante** está definido como **Alto-falante TV** no menu de som.
- ☑ A melodia será ouvida durante o teste mesmo se **Selecionar Alto-falante** estiver definido como **Alto-falante Ext** ou se o som tiver sido eliminado por meio da tecla **MUTE**.
- **Sim**: Caso, durante o teste de som, seja possível ouvir o som vindo apenas de um alto-falante ou de nenhum alto-falante, selecione **Sim**. Pode haver um problema com a TV. Entre em contato com a Central de Atendimento da Samsung para obter assistência.
- **Não**: Caso seja possível ouvir o som vindo dos alto-falantes, selecione **Não**. Pode haver um problema com o seu equipamento externo. Verifique suas conexões. Se o problema ainda persistir, consulte o manual do usuário do dispositivo externo.

■ Intensidade do Sinal (apenas para canais digitais)

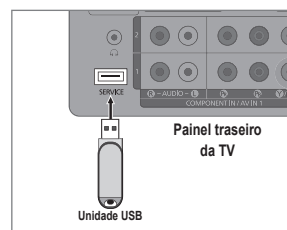
Diferente dos canais analógicos, que podem variar na qualidade da recepção de 'com chuviscos' para 'nítida', os canais digitais (HDTV) devem ter uma qualidade de recepção perfeita ou você simplesmente não terá sinal nenhum. Portanto, diferentemente dos canais analógicos, não é possível submeter um canal digital ao ajuste de sintonia fina. Você pode, contudo, ajustar a antena para melhorar a recepção dos canais digitais disponíveis.

- ☑ Se o medidor da intensidade do sinal indicar que o sinal está fraco, ajuste fisicamente a antena para aumentar a intensidade do sinal. Continue a ajustar a antena até encontrar a melhor posição com o sinal mais forte.

❑ Atualização de Software

A Samsung pode oferecer atualizações para o firmware da sua TV no futuro. Entre em contato com o centro de atendimento Samsung em 1-800-SAMSUNG (726-7864) para receber informações sobre o download de atualizações e o uso de uma unidade USB. As atualizações serão possíveis através da conexão de um dispositivo USB à porta USB localizada na sua TV.

- ☑ Insira uma unidade USB contendo a atualização do firmware na porta na lateral da TV.
- ☑ Tome cuidado para não desconectar a energia ou remover a unidade USB enquanto as atualizações são aplicadas. A TV desligará e ligará automaticamente após concluir as atualizações do firmware. Verifique a versão do firmware depois de concluir as atualizações. Por ocasião da atualização do software, as configurações de vídeo e áudio feitas por você voltam aos ajustes padrão (de fábrica). Recomendamos que você anote as suas configurações para que possa reconfigurá-las facilmente após atualizar o software.



❑ Guia de Conexão HD

Este menu apresenta o método de conexão que fornece a qualidade máxima para a HD TV

Consulte essas informações ao conectar dispositivos externos à TV.

❑ Entre em contato com a Samsung

Veja essas informações quando sua TV não funcionar corretamente ou caso deseje atualizar o software.

É possível consultar informações sobre o centro de atendimento, produtos e métodos de download de softwares.

Solução de problemas

Se a TV aparentar ter algum problema, experimente primeiro verificar esta lista de possíveis problemas e soluções. Se nenhuma dessas dicas de solução de problemas se aplicar ao seu caso, entre em contato com o centro de atendimento ao cliente Samsung pelo telefone 0800-124-421 / 4004-0000.

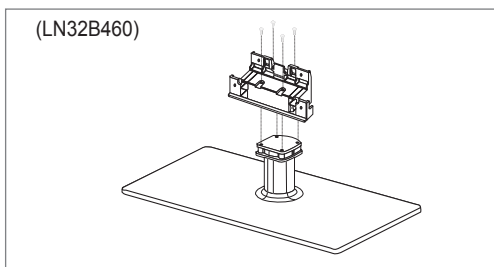
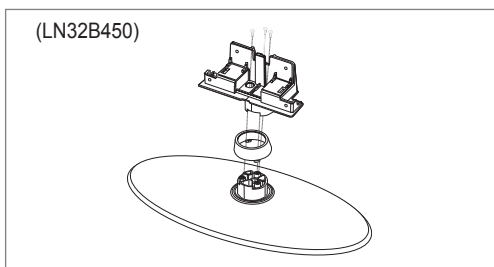
Problema	Solução possível
Imagem ruim.	Tente outro canal. / Ajuste a antena. / Verifique todas as conexões com cabos.
Qualidade do som ruim.	Tente outro canal. / Ajuste a antena.
Sem imagem ou som.	Tente outro canal. / Pressione o botão SOURCE . Certifique-se de que a TV esteja ligada na tomada. / Verifique as conexões da antena.
Sem som ou som muito baixo no volume máximo.	Verifique primeiro o volume das unidades conectadas à TV (receptor de transmissão digital, DVD, receptor de transmissão a cabo, vídeo cassete, etc.). Em seguida, ajuste o volume da TV de acordo. Verifique as configurações de seleção de alto-falante.
A imagem rola verticalmente.	Verifique todas as conexões da fiação.
Há um problema com a imagem.	Execute o teste de imagem, localizado no menu Auto-diagnóstico.
Há um problema com o som.	Execute o teste de som, localizado no menu Auto-diagnóstico.
A TV funciona de maneira errática.	Desligue a TV por 30 segundos, em seguida, tente ligá-la novamente.
A TV não quer ligar.	Certifique-se de que a tomada de parede esteja funcionando.
Problemas no funcionamento do controle remoto.	Substitua as pilhas do controle remoto. Limpe a parte superior do controle remoto (janela de transmissão). Verifique os terminais das pilhas.
Mensagem 'Verificar cabo de sinal'.	Verifique se o cabo de sinal está bem conectado ao computador.
Mensagem 'Modo incompatível'.	Verifique a resolução máxima e a frequência de vídeo do dispositivo conectado. Compare estes valores com os dados dos modos de visualização.
Problema na tela de transmissão digital.	Verifique a intensidade do sinal digital e a antena de entrada.
A imagem está muito clara ou muito escura.	Ajuste o brilho e o contraste. / Ajuste a sintonia fina.
Barras pretas na tela.	Certifique-se de que a transmissão recebida seja de alta definição (HD). Os canais HD às vezes transmitem a programação de definição padrão (SD), o que pode causar barras pretas. Configure o cabo/receptor de satélite para o modo de extensão ou widescreen para eliminar as barras.
A imagem apresenta um matiz vermelho/verde ou rosa.	Certifique-se de que os cabos do componente estejam conectados aos conectores corretos.
O recurso Closed Captioning (legenda oculta) não está funcionando.	Se você usar um cabo/receptor de satélite, é necessário configurar o Closed Captioning no receptor, não na TV.
Imagem com chuvisco.	O cabo necessita de um upgrade de firmware. Por favor, entre em contato com a empresa de serviços a cabo.
Fantasma na imagem.	Este problema é causado por questões de compatibilidade com o cabo. Em vez disso, tente conectar cabos do componente.
Barras horizontais parecem tremer, piscar ou distorcer a imagem.	Ajuste a sintonia básica e depois a sintonia fina.
Barras verticais parecem tremer, piscar ou distorcer a imagem.	Ajuste a sintonia básica e depois a sintonia fina.
A tela está preta e a luz do indicador de energia pisca regularmente.	No seu computador, verifique: se ele está ligado e o cabo do sinal. A TV está utilizando o sistema de gerenciamento de energia. Mova o mouse do computador ou pressione uma tecla do teclado.
A imagem não está estável e parece vibrar quando um computador está conectado à entrada de PC.	Se o ajuste não estiver correto, execute o programa utilitário do computador para alterar os ajustes do display. Sua TV suporta funções de vídeo multiscan dentro dos seguintes domínios de frequência: - Frequência horizontal (kHz): 30~60 - Frequência vertical (Hz): 60~75 - Taxa máxima de atualização de PC (a 60 Hz): 1360 x 768
A imagem não está centralizada na tela.	Ajuste a posição vertical e horizontal. A posição da tela deve ser ajustada na fonte de saída (ex.: STB) com um sinal digital.

Problema	Solução possível
Uma distorção da imagem aparece no canto da tela.	Se Ajuste à Tela estiver selecionado com alguns dispositivos externos, poderá haver distorção de imagem no canto da tela. Este problema é causado por dispositivos externos e não pela TV.
A mensagem 'Reconfigurar tudo para valores padrão' é exibida.	Essa mensagem aparece quando você mantém o botão EXIT pressionado por um tempo. As configurações do produto são reconfiguradas para o padrão de fábrica.

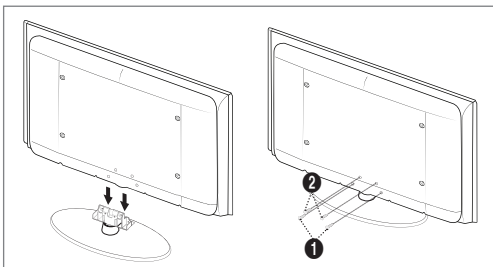
- ☑ O painel TFT LCD usa um painel com subpixels (3 133 440) que exige uma tecnologia sofisticada para produzir. Entretanto, pode haver poucos pixels luminosos ou escuros na tela. Esses pixels não causarão nenhum impacto no desempenho do produto.

Instalação do suporte

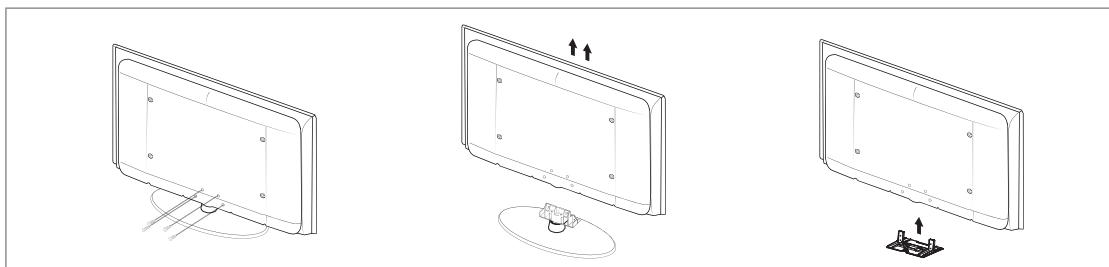
- ☑ **Predefinição:** Encaixe o suporte de guia e o gargalo da tampa no suporte e aperte usando parafusos. Aplicável somente a modelos de 32 polegadas.



1. Fixe a sua TV LCD no suporte.
 - ☑ Duas ou mais pessoas devem carregar a TV.
 - ☑ Certifique-se de distinguir entre a parte frontal e posterior do suporte ao fixar a TV.
 - ☑ Para certificar-se de que a TV está instalada no suporte e nivelada corretamente, não aplique pressão excessiva na parte superior esquerda das laterais à direita da TV.
2. Aperte os parafusos na posição ❶ e então aperte os parafusos na posição ❷.
 - ☑ Levante o produto e aperte os parafusos. Se você apertar os parafusos sem levantar a TV LCD, ela poderá inclinar para um lado.



Desconectar a base

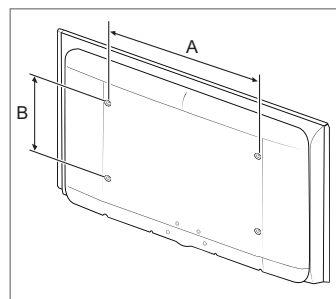


1. Remova os quatro parafusos da parte traseira da TV.
2. Separe o suporte da TV.
 - ☑ Duas ou mais pessoas devem carregar a TV.
3. Feche o furo inferior com a tampa.

Especificações do kit de montagem na parede (VESA)

Instale o seu suporte de parede em uma parede sólida e perpendicular ao chão. Se a fixação for feita em algum outro material construtivo, entre em contato com o revendedor mais próximo. Se instalado em um teto ou uma parede com inclinação, ele poderá cair e ocasional algum dano pessoal grave.

Família de produto	polegadas	Especif. VESA (A x B)	Parafuso Padrão	Quantidade
LCD-TV	19 ~ 22	100 x 100	M4	4
	23 ~ 29	200 x 100		
	30 ~ 40	200 x 200	M6	
	46 ~ 55	400 x 400	M8	
	57 ~ 70	800 x 400		
	80 ~	1400 x 800		
PDP-TV	42 ~ 50	400 x 400	M8	4
	58 ~ 63	600 x 400		
	70 ~	800 x 400		
	80 ~	1400 x 800		
LFD	30 ~ 39	200 x 200	M6	4
	40 ~ 52	400 x 400	M8	
	55 ~ 70	800 x 400		
	70 ~	1400 x 800		



- ☑ As medidas padrão para kits de montagem na parede são mostradas na tabela acima.
- ☑ Ao adquirir o nosso kit para montagem na parede, acompanham o produto um manual de instalação detalhado e todas as peças necessárias.
- ☑ Não use parafusos mais compridos do que as medidas Padrão, pois eles podem danificar a parte interna do conjunto da TV.
- ☑ Para montagens em paredes que não estejam em conformidade com essas especificações VESA de parafuso Padrão, o comprimento dos parafusos pode ser diferente, dependendo das especificações de cada uma delas.
- ☑ Não use parafusos que não estejam em conformidade com as especificações VESA de parafuso padrão.
- ☑ Não aperte os parafusos com muita força, pois isso pode danificar o produto ou ocasionar a queda dele, o que pode resultar em ferimentos pessoais. A Samsung não se responsabiliza por esses tipos de acidentes.
- ☑ A Samsung não se responsabiliza por danos ao produto nem ferimentos pessoais quando for usado um suporte para parede que não seja VESA ou não seja o especificado, ou no caso de o cliente não seguir as instruções de instalação do produto.
- ☑ Nossos modelos de 57" e 63" não estão em conformidade com as especificações VESA. Por isso, é necessário utilizar o nosso kit especial de montagem na parede indicado para este modelo.
- ☑ Não ultrapasse 15 graus de inclinação ao montar esta TV.

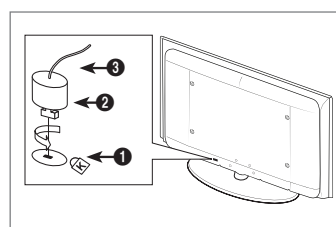
⚠ Não instale o kit de montagem em parede enquanto a TV estiver ligada. Isso pode causar ferimentos devido a choques elétricos.

Trava anti-furto Kensington

A trava Kensington é um dispositivo usado para proteger fisicamente o sistema quando usado em um local público. A aparência e o método de bloqueio podem ser diferentes daqueles apresentados na ilustração, dependendo do fabricante.

Consulte o manual fornecido com a trava Kensington para utilizá-la adequadamente.

- ☑ O dispositivo de bloqueio precisa ser adquirido separadamente.
 - ☑ A posição da trava Kensington poderá ser diferente, dependendo do modelo.
1. Insira o dispositivo de bloqueio no conector Kensington da TV LCD (1) e gire-o na direção de travamento (2).
 2. Conecte o cabo da trava Kensington (3).
 3. Prenda a trava Kensington a uma mesa ou a um objeto fixo pesado.

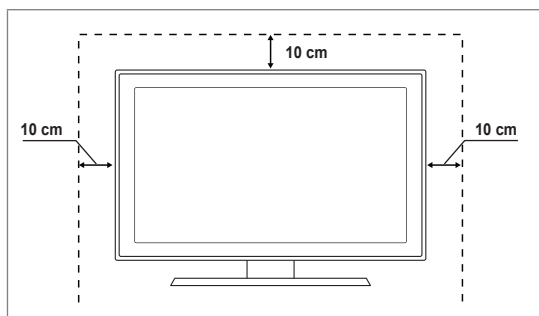


Segurança do espaço de instalação

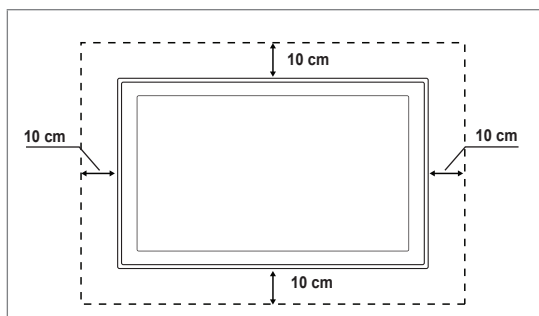
Mantenha as distâncias exigidas entre o produto e outros objetos (paredes, por exemplo) para garantir a ventilação apropriada. A falta disso pode resultar em incêndio ou algum problema com o produto devido a um aumento da temperatura interna do produto. Instale o produto de modo que as distâncias exigidas mostradas na figura sejam mantidas.

- ☑ Ao usar um suporte ou kit de montagem na parede, utilize somente as peças fornecidas pela Samsung Electronics.
 - Se você usar peças fornecidas por outro fabricante, isto pode resultar em algum problema com o produto ou ferimento ocasionado pela queda do produto.
 - Se você usar peças fornecidas por outro fabricante, isto pode resultar em algum problema com o produto ou incêndio ocasionado por um aumento da temperatura interna do produto devido a ventilação insuficiente.
- ☑ A aparência pode ser diferente dependendo do produto.

Instalação do produto com um suporte



Instalação do produto com kit de montagem na parede



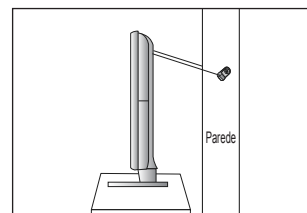
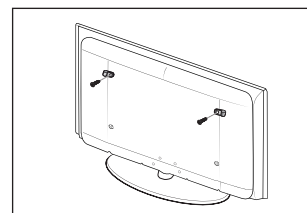
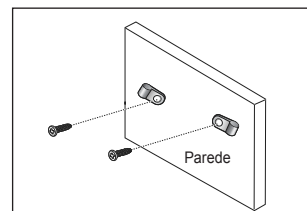
Fixando a TV à Parede



Cuidado: Puxar, empurrar ou subir na TV pode fazer com que ela caia. Fique atento para que as crianças não subam ou mexam na TV, pois se elas fizerem isso, a TV poderá cair e causar ferimentos graves, podendo até levar à morte. Siga todas as precauções de segurança fornecidas no folheto de segurança incluso. Para maior estabilidade, instale um dispositivo anti-queda para fins de segurança, da forma a seguir.

Para evitar que a TV caia:

1. Coloque os parafusos em grampos e prenda-os bem na parede. Certifique-se de que os parafusos estejam fixados firmemente na parede.
 - ☑ Você pode precisar de material extra, como um chumbador, dependendo do tipo de parede.
 - ☑ Como os grampos, parafusos e corda necessários não são fornecidos, você deve comprá-los separadamente.
2. Remova os parafusos da parte traseira central da TV, coloque-os em grampos e aperte-os novamente na TV.
 - ☑ Os parafusos podem não ser fornecidos com o produto. Neste caso, adquira parafusos com as especificações a seguir.
 - ☑ Especificações de parafuso
 - Para uma TV LCD de 17 a 29 polegadas: M4 X 15 / Para uma TV LCD de 32 a 40 polegadas: M6 X 15
3. Conecte os grampos fixados na TV e os que estão fixados na parede com um fio forte e prenda-os bem.
 - ☑ Instale a TV perto da parede para que ela não caia para trás.
 - ☑ É seguro conectar a corda para que os grampos fixados na parede fiquem no mesmo nível ou abaixo dos grampos fixados na TV.
 - ☑ Desamarre a corda antes de mover a TV.
4. Verifique se todas as conexões estão seguras. Verifique periodicamente as conexões para evitar qualquer sinal de fadiga ou falha. Caso haja alguma dúvida sobre a segurança das conexões, entre em contato com um profissional de instalação.



Especificações

Nome do modelo	LN26B450	LN32B450, LN32B460
Tamanho da tela Diagonal	26 polegadas	32 polegadas
Consumo de energia Operação normal Em espera	80W <1W	130W <1W
Resolução do PC	1360 x 768 @ 60Hz	1360 x 768 @ 60Hz
Som Saída	5W X 2	10W x 2
Dimensões (LxPxA) Sem suporte Com suporte	26,4 x 3,0 x 17,9 polegadas (669,7 x 75,3 x 455 mm) 26,4 x 8,5 x 19,5 polegadas (669,7 x 216 x 495,1 mm)	31,4 x 3,3 x 20,9 polegadas (797,7 x 84,8 x 530,5 mm) 31,4 x 9,9 x 22,7 polegadas (797,7 x 252 x 576,5 mm)
Peso Sem suporte Com suporte	7 kg (15,4 lbs) 8,4 kg (18,5 lbs)	9,1 kg (20,0 lbs) 11,4 kg (25,1 lbs)
Considerações ambientais Temperatura funcionamento Umidade funcionamento Temperatura armazenamento Umidade armazenamento	10°C a 40°C (50°C a 104°C) 10% a 80%, sem condensação -20°C a 45°C (-4°C a 113°C) 5% a 95%, sem condensação	
Rotação do suporte Esquerda / Direita	-20° ~ 20°	

Nome do modelo	LN37B450	LN40B450
Tamanho da tela Diagonal	37 polegadas	40 polegadas
Consumo de energia Operação normal Em espera	140W <1W	180W <1W
Resolução do PC	1360 x 768 @ 60Hz	1360 x 768 @ 60Hz
Som Saída	10W x 2	10W x 2
Dimensões (LxPxA) Sem suporte Com suporte	36 x 3,7 x 23,8 polegadas (913,2 x 93,3 x 605,3 mm) 36 x 11,8 x 25,8 polegadas (913,2 x 300 x 656,2 mm)	39 x 3,7 x 25,3 polegadas (989,8 x 93,4 x 642,8 mm) 39 x 11,8 x 27,2 polegadas (989,8 x 300 x 692,1 mm)
Peso Sem suporte Com suporte	10,5 kg (23,1 lbs) 13,7 kg (30,2 lbs)	14,4 kg (31,7 lbs) 17,7 kg (39,0 lbs)
Considerações ambientais Temperatura funcionamento Umidade funcionamento Temperatura armazenamento Umidade armazenamento	10°C a 40°C (50°C a 104°C) 10% a 80%, sem condensação -20°C a 45°C (-4°C a 113°C) 5% a 95%, sem condensação	
Rotação do suporte Esquerda / Direita	-20° ~ 20°	

- ☑ Design e especificações estão sujeitos a alterações sem aviso prévio.
- ☑ Este dispositivo é um equipamento digital classe B.
- ☑ Para obter dados sobre a fonte de alimentação e o consumo de energia, consulte a etiqueta que está no produto.

***Esta página está em branco
intencionalmente.***