Your Gateway
KAS-303 Home Theater

systemguide

Setting up | Troubleshooting | Gateway®

Contents

iii

iv

Checking Out Your Gateway Receiver

1

This chapter provides basic information about your Gateway Receiver.

Read this chapter to learn about:

■ Warnings and safeguards

■ Controls and connections

■ Remote control

1

Features

A powerful, 1000-watt, 6.1 home theater system featuring TrueDigital™ amplification for premium, multichannel digital sound.

- 600-watt audio receiver

- 400-watt Hsu Research™-engineered sub-woofer

- 5 satellite and 1 Ventriloquist™ center channel speakers

- Analog and digital audio inputs and outputs.

- Composite and S-Video video inputs and outputs.

Important Safeguards

Warning	**Risk of electric shock - Do not open**
	To reduce the risk of electric shock, do no remove the cover. There are no user-serviceable parts inside. Removing the cover voids the warranty.
	Have your receiver repaired by qualified service personnel only.

Warnings and precautions
- Disconnect all cables before moving your receiver. Moving your receiver with its cables attached may damage the cables and cause fire or electric shock danger.

- Do not expose your receiver to rain or moisture.

- Keep your receiver away from excessive dust, high temperatures, moisture, or direct sunlight.

- Use your receiver in a well-ventilated area and do not cover the ventilation openings.

- Do not modify your receiver or use an unshielded power cord or video output source cable, or you may experience excessive interference.

■ Disconnect your receiver and unplug the power cord when not used for a long period of time.

■ For more safety information, see "Important safety information" on page 103.

Package contents

Along with your receiver, the packaging box contains the following items:

■ Remote control

■ Two AAA batteries

■ RCA audio/video cables

■ AM Loop antenna

■ FM antenna

■ User guide

You can purchase these optional accessories for your receiver:

■ S-Video cable

■ AC-3 (Toslink) cable

Front panel
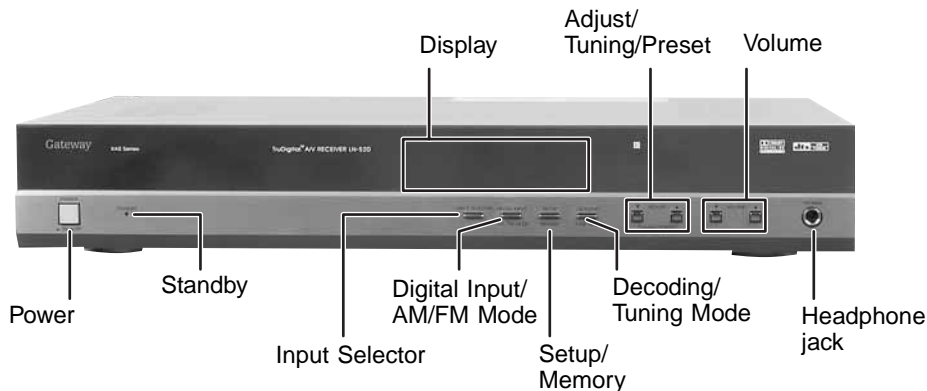
Item	Description
Display	See "Display" on page 5.
Adjust/ Tuning/Preset	When in Setup mode, adjusts submenu items. When the tuner is selected, tunes the radio manually, automatically, or to preset radio stations.
Volume	Turns the volume up or down.
Power	Turns the receiver on and off.
Standby	Lights when the receiver is in Standby mode.
Input Selector	Switches inputs.
Digital Input/ AM/FM Mode	Digital Input selector when a digital signal (AUX, VIDEO 1-3) is selected. When the tuner is selected, selects the band.
Setup/ Memory	Press for more than two seconds to enter Setup mode. While in Setup mode, switches between main menu items. When the tuner is selected, memorizes radio stations.
Decoding/ Tune Mode	When in Setup mode, switches submenu items. When the tuner is selected, switches between Tuning mode and Preset mode.
Headphone jack	Connect your headphones to this jack.

Display

Stereo indicator

Main display

Tuned indicator

Direct indicator

Memory indicator

ST TUNED TIMER R2 DIRECT   TAPE 2M PRESET
MEM 1

dB
kHz
MHz

ft

DTS ES ▢▢ DIGITAL-EX ▢▢ PROLOGIC **II** CM DSP AUTO DIGITAL SLEEP

Auto mode indicator

Preset/Sleep/Distance
indicators

Surround mode indicators

Digital input signal indicator
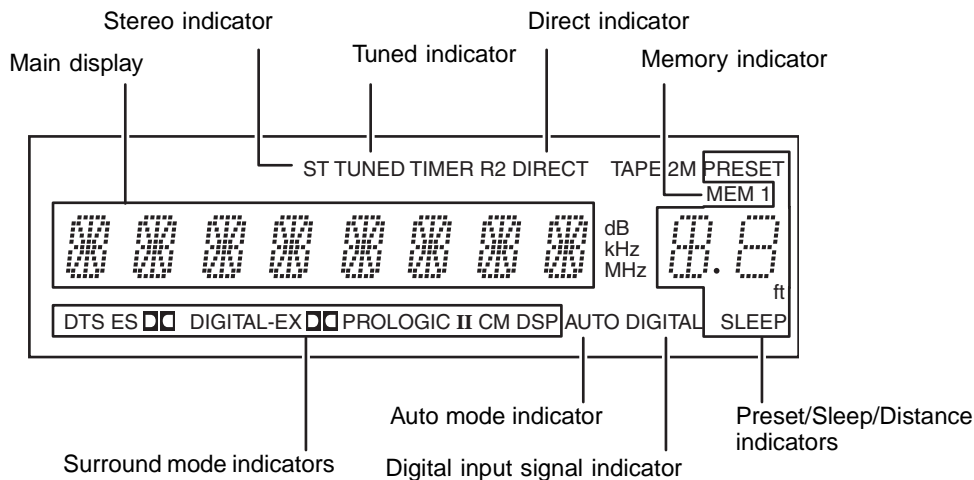
Item	Description
Main display	Displays items such as, Input source, frequency, volume level, and operating information.
STEREO indicator	Displays stereo radio signal status.
TUNED indicator	Displays tuned radio station status.
DIRECT indicator	Displays direct mode status.
MEMory indicator	Displays the selected memory channel.
Surround mode indicators	Displays the currently selected surround sound mode.
AUTO indicator	Displays automatic mode status.
DIGITAL input signal indicator	Displays presence of a digital audio signal.
PRESET number, SLEEP time, Speaker distance display	Displays presets, sleep timer, and speaker distance information.

Back panel connections

Antenna   Video   6 or 7 channel direct

Digital   Audio   Subwoofer   Speakers
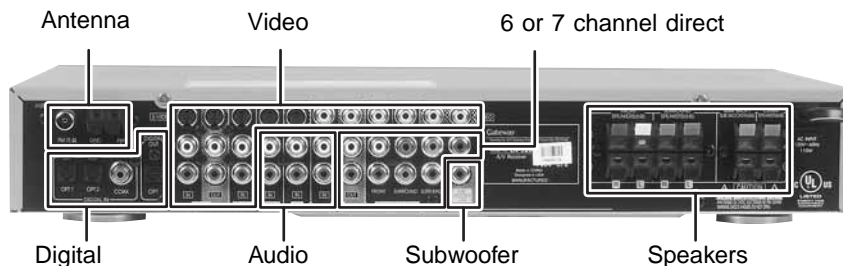
Connector Array	Description
Antenna	Connect AM and FM antennas.
Video (and audio) components	▪ Connect the VIDEO 1-3 jacks to components, such as a VCR or DVD player. ▪ Connect the Monitor jacks to your primary and secondary displays, such as a television or projector.
6 or 7 channel direct input components	Connect the analog audio outputs of a 6 or 7 channel component such as a DVD player or external decoder. When connecting a 6 channel component leave the SURR BACK jack empty.
Digital INs and OUT	▪ Connect the Digital INs to the coaxial and optical Digital OUTs of the components connected to AUX and VIDEO 1-3. ▪ Connect the Digital OUT to the Digital IN of a digital recorder such as an MD recorder or CD recorder that has a digital input.
Audio (only) components	▪ Connect the TAPE IN/OUT jacks to an audio only-type component, such as a tape deck. ▪ Connect the AUX jacks to an additional component such as a CD player.
Subwoofer	Connect a powered subwoofer.
Speakers	Connect speakers with an impedance of 6 ohms or above.

Universal remote control

This universal remote control can operate not only this receiver, but also most popular brands of audio and video components such as CD players, cassette decks, TVs, cable boxes, VCRs, DVD players, and satellite receivers.

To operate up to 7 components, other than this receiver, enter the setup code for each component. For information, see "Programming the remote control" on page 43.
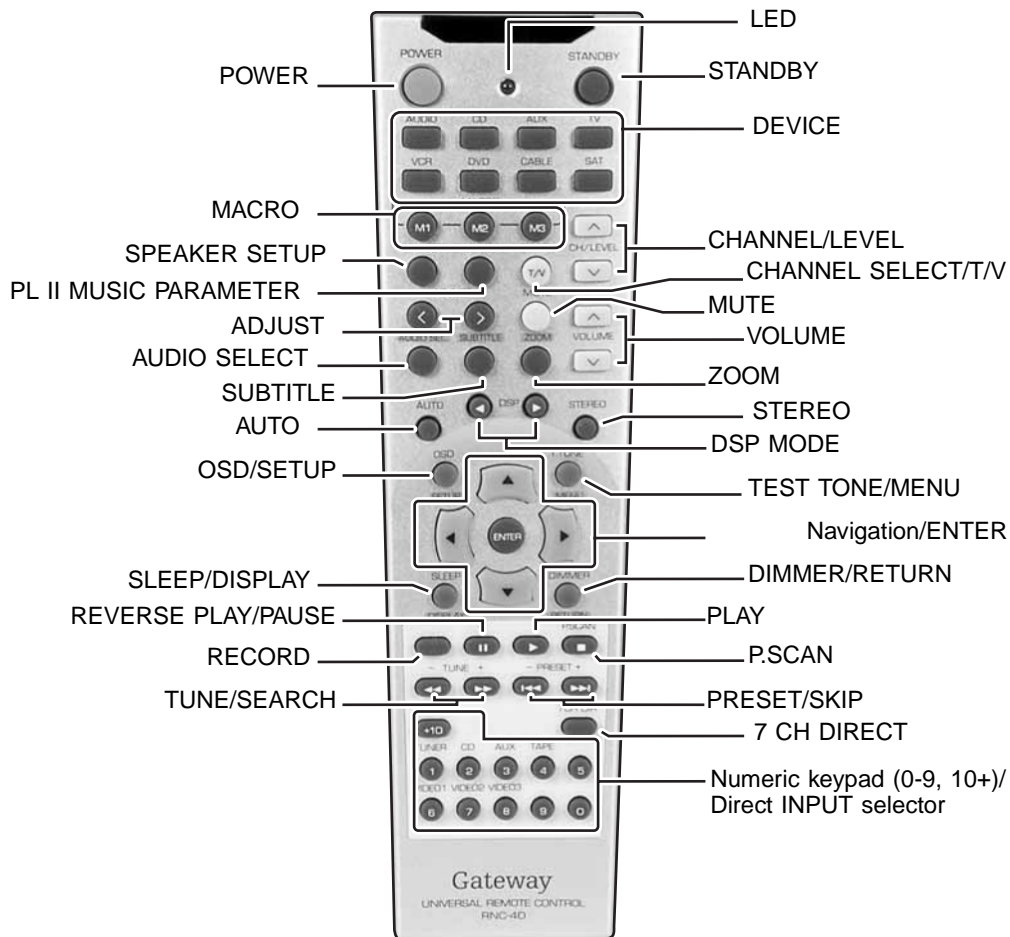
Button	Description
POWER	**Power On.** Turns the receiver off or puts the receiver in Standby mode. For more information, see "Turning the receiver on and off" on page 38.
	LED. Provides visual feedback when performing functions or programming operations.
STANDBY	**Standby.** Turns the receiver on or puts the receiver in Standby mode. For more information, see "Turning the receiver on and off" on page 38.
	Device. Press to put the remote into a specific device mode for operating connected components. For more information, see "Operating components with the universal remote control" on page 42.
CH/LEVEL	**Channel level.** Adjusts a program (television) channel or the test tone channel levels up or down. For more information, see "Adjusting the channel levels" on page 52.
CH SEL T/V	**Channel select.** Selects a specific channel to adjust individual test tone channel levels up or down. For more information, see "Adjusting the channel levels" on page 52.
	T/V. Changes inputs for connected components such as a TV or VCR.
MUTE	**Mute.** Mutes the sound.
VOLUME	**Volume.** Adjusts the overall volume.
ZOOM	**Zoom.** Enlarges a part of the DVD screen.
STEREO	**Stereo.** Turns off surround mode and puts the receiver into stereo mode. For more information, see "Selecting the surround mode" on page 50.
DSP	**DSP Mode.** Cycles through the available surround modes. For more information, see "Selecting the surround mode" on page 50.
T. TONE MENU	**Test tone.** Enters the test tone mode. For more information, see "Adjusting the channel levels" on page 52.
	Menu. Opens the menu for connected components such as a DVD player.
▶, ▲, ◀, ▼	▶, ▲, ◀, ▼. Navigates the on-screen display (OSD) menus. For more information, see "Using the OSD" on page 63.

| Button	Description
ENTER	**Enter.** Confirms a selection in a menu. For more information, see "Using the OSD" on page 63.
DIMMER ○ RETURN	**Dimmer.** Adjusts the display brightness. For more information, see "Adjusting the display brightness" on page 62. **Return.** Returns from an OSD settings screen to the Setup Menu. For more information, see "Using the OSD" on page 63.
⊏▶⊐	**Play (▶).** Plays the DVD, CD, or MP3.
P.SCAN ⊏⊐	**P.Scan.** Scans the preset radio stations pausing at each one for 5 seconds. For more information, see "Listening to the radio" on page 57. **Stop (■).** Stops playing the disc.
- PRESET + ◀◀ ▶▶	**Preset/Skip back (◀◀).** Changes the radio station to the next memorized station or performs backward skip functions such as skipping back one CD track or DVD chapter. For more information, see "Listening to the radio" on page 57. **Preset/Skip ahead (▶▶).** Changes the radio station to the previous memorized station or performs forward skip functions such as skipping ahead one CD track or DVD chapter. For more information, see "Listening to the radio" on page 57.
7CH DIR. ⊏⊐	**7 Channel Direct.** Selects audio signal from a connected 6 or 7 channel direct input component. For more information, see "Switching between connected components" on page 46.
	Numeric keypad (0-9, 10+). Enters numbers when selecting or programming. **Direct INPUT selector.** Selects corresponding connected component as source for audio/video input. For more information, see "Switching between connected components" on page 46.
- TUNE + ▶▶ ◀◀	**Tune/Search back (◀◀).** Tunes in a radio station or performs backward search functions, such as playing a CD backward quickly or playing a DVD backward in slow motion. For more information, see "Listening to the radio" on page 57. **Tune/Search ahead(▶▶).** Tunes in a radio station or performs forward search functions, such as playing a CD forward quickly or playing a DVD forward in slow motion. For more information, see "Listening to the radio" on page 57.
⊏●⊐	**Record.** Starts recording on components, such as a VCR.
◀ ⊏॥⊐	**Reverse play.** Reverses play for connected components, such as AUX. **Pause (॥).** Pauses play.

Button	Description
SLEEP ⬤ DISPLAY	**Sleep.** Sets the receiver to automatically turn off after a set period of time. Shows the on-screen display. For more information, see "Using the sleep timer" on page 62. **Display.** Turns on the display for connected components, such as a DVD player.
OSD ⬤ SETUP	**OSD.** Opens the on-screen display (OSD) menus. For more information, see "Using the OSD" on page 63. **Setup.** Opens the setup menu for connected components, such as a DVD player.
AUTO ⬤	**Auto.** Automactially selects surround mode based on the type of digital input signal detected. For more information, see "Surround sound" on page 47.
SUBTITLE ⬤	**Subtitle.** Opens the Subtitle menu.
AUDIO SEL ⬤	**Audio select.** Changes audio track selection for connected components, such as a DVD player.
PLII PARA ⬤ SPK SET ⬤ -ADJUST- ⬅ ➡	**PL II Music Parameter.** Adjusts Dolby Pro Logic II music parameters. For more information, see "Adjusting Dolby Pro Logic II Music parameters" on page 56. **Speaker setup.** Adjusts speaker settings. For more information, see "Setting up your speakers" on page 39. **Adjust**. Use to adjust above two settings.
AUTO ⬤	**Macro.** Program macros to send many button presses with the touch of just one button. For more information, see "Programming the remote control" on page 43.

Inserting batteries

▶ To install the batteries:

■ Insert two AAA batteries into the remote control. Make sure that you match the + and – on the batteries with the + and – symbols inside the battery compartment.
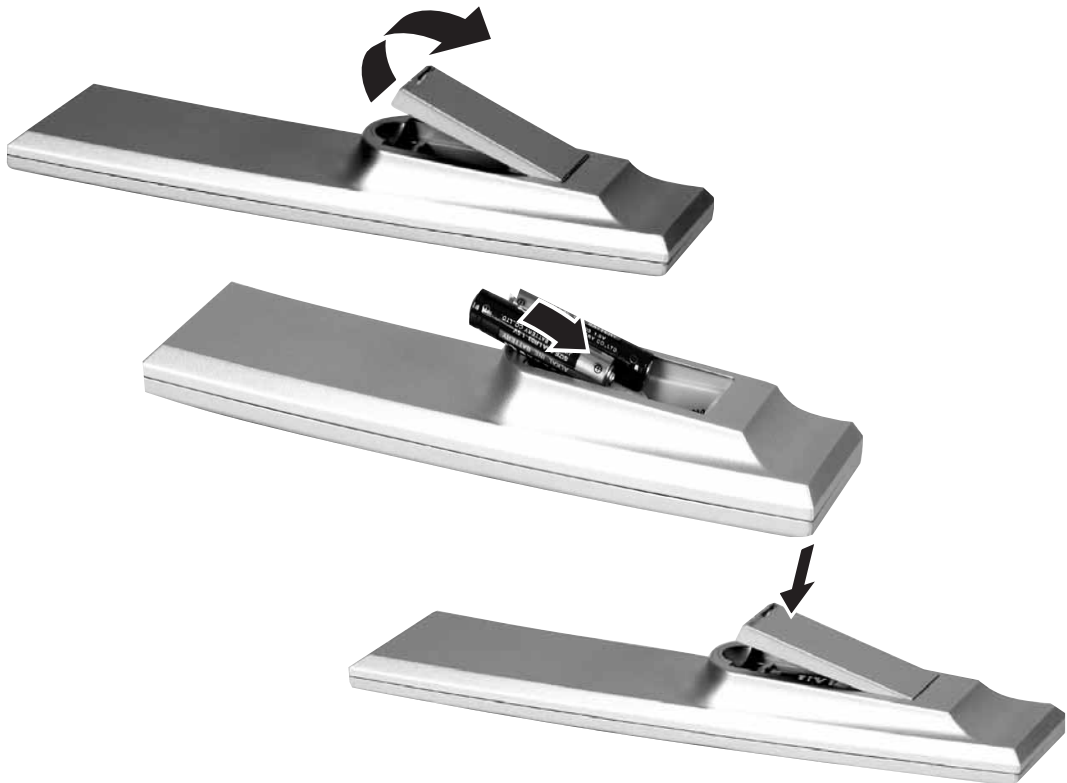
| **Warning** | Do not use rechargeable Ni-Cd batteries in this remote control. |
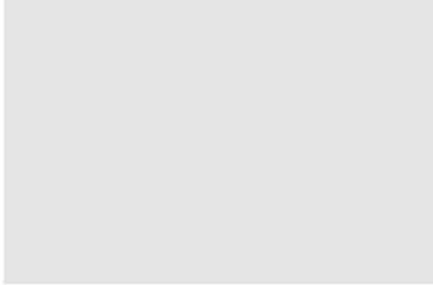
Connecting Components and Speakers 2

Read this chapter to learn how to connect your receiver to audio/video (A/V) components and speakers.
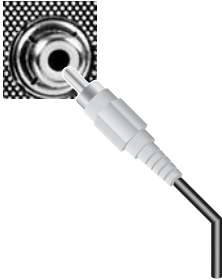
Important | Do not plug the power cord into a wall outlet or turn the receiver on until all connections have been made.
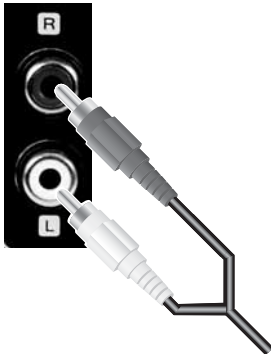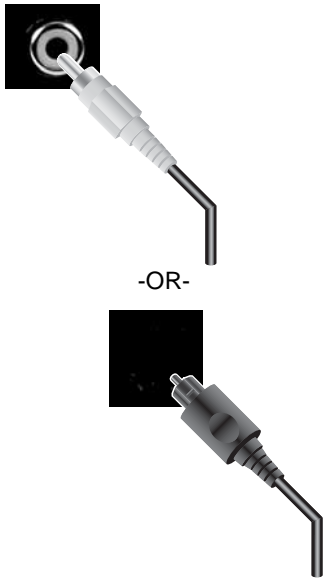
Understanding video connections

Your receiver has two types of standard video connections. You should use the best connection available to get the best display. For example, if your VCR supports an S-video connection, connect the VCR to your receiver using S-video instead of composite video.

| Connection Quality	Cable and Connector	Description
Good		**Composite**. The video signal is carried through a single "pin." This connection method is the one that is most commonly found on devices.
Better		**S-Video.** The video signal is split into two signals, black-and-white and color. Text displayed on-screen through this connection will be noticeably sharper then composite.

Understanding audio connections

Your receiver has three types of standard audio connections. You should use the best connection available to get the best sound. For example, if your DVD player supports a digital audio connection, connect the DVD player to your receiver using digital audio instead of analog stereo audio.

Connection Quality	Cable and Connector	Description
Good		**RCA Analog Stereo** The audio signal is carried through two cables, one for the right speaker and one for the left. This connection method is the one that is most commonly found on devices.
Best	-OR-	Use digital audio for the best sound quality. Your receiver supports the following digital audio connections. **Coaxial Digital** Coaxial cables are commonly used with digital audio signals. **AC-3 (Toslink) Digital** Toslink is a connector format for fiber optic digital audio cables. A fiber optic digital audio cable carries audio data in the form of light impulses instead of electrical signals. The Toslink connector is a square plug.

# Connecting the AM loop antenna

Place the AM loop antenna as far as possible from the receiver, TV, speaker cables, and the power cord for best reception. The antenna is directional so set it to a direction for the best reception.

▶ To connect the AM loop antenna:

1 Unfold the AM loop antenna and snap the loop into the base.
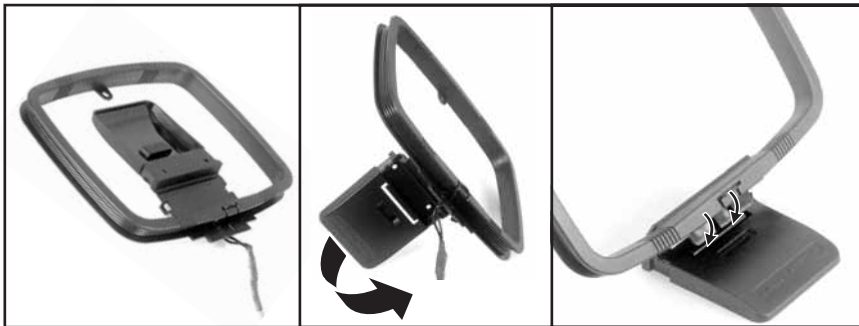

2 Connect the antenna leads to the GND and AM clips on your receiver.

Connecting the FM antenna

Change the position of the FM antenna until you get the best reception of your favorite FM stations.

▶ To connect the FM antenna:

1 Connect the FM antenna to the FM antenna connector on your receiver.
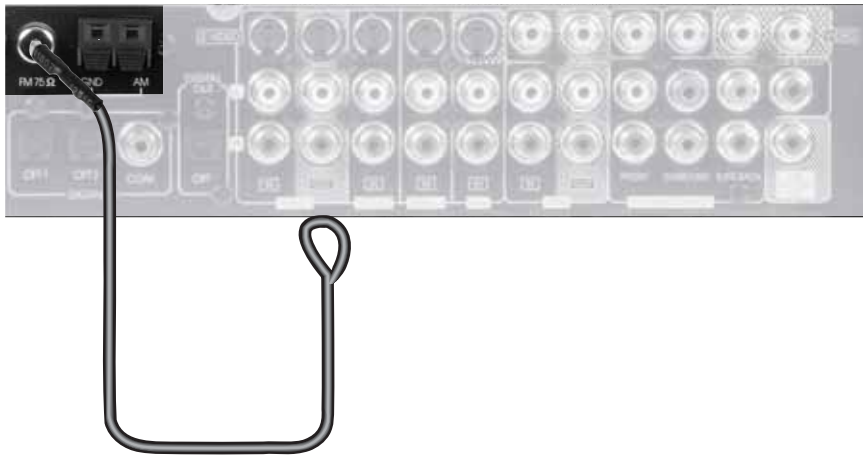
You may improve FM reception by using an outdoor antenna.
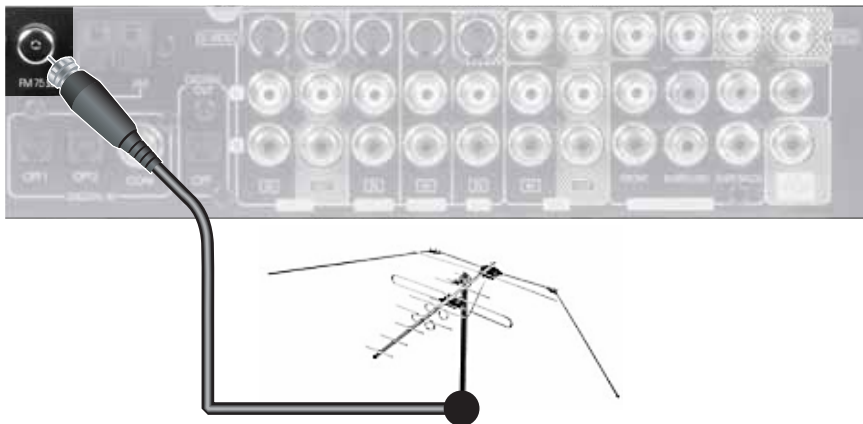
Connecting a DVD player

To connect a DVD player to your receiver:

1 Connect the S-Video jack on the back of your DVD player to the S-Video jack on your receiver.

2 Connect the AC-3 toslink digital audio jack on the back of your DVD player to the AC-3 toslink digital audio in jack on your receiver.

-OR-

Connect the coaxial out jack on the back of your DVD player to the coaxial in jack on your receiver.

Connecting a 6 or 7 channel component

Use the 7CH DIRECT INPUT connectors on the receiver to connect the corresponding analog outputs of a DVD player or external decoder that has 6 or 7 channel outputs.

If you are connecting a 6 channel output component, leave the surround back (SURR BACK) connector on the receiver unused.
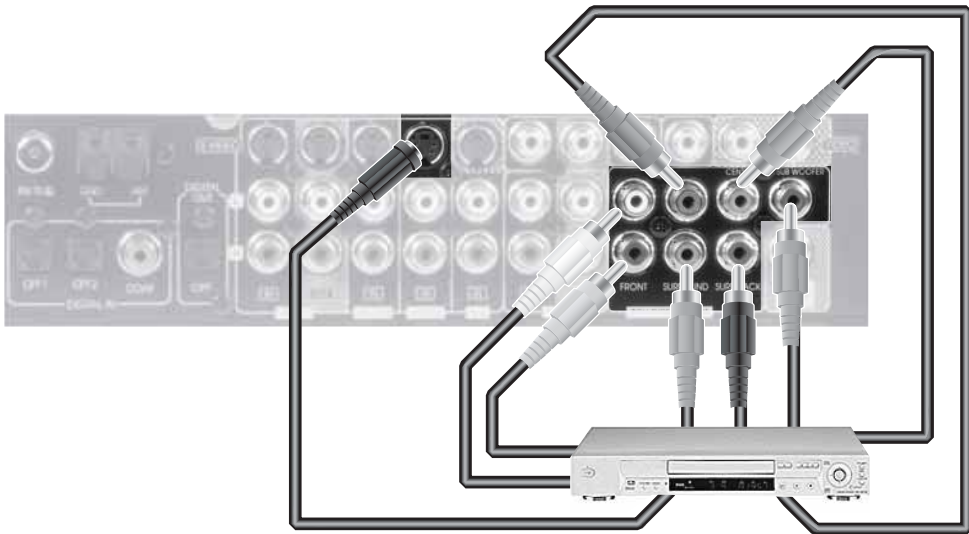
To connect a 6 or 7 channel component:

1 Connect the analog outputs of your 6 or 7 channel component to the corresponding 7 channel direct input jacks on your receiver.

2 Connect the S-video jack of your 6 or 7 channel component to the S-video jack on your receiver.

Connecting a VCR

This receiver supports S-Video and composite video jacks.

▶ **To connect a VCR using S-Video:**

1 Connect the red (R) and white (L) audio out jacks on the back of your VCR to the R and L audio in jacks on your receiver.

2 Connect the red (R) and white (L) audio in jacks on the back of your VCR to the R and L audio out jacks on your receiver.

3 Connect the S-video out jack on the back of your VCR to the S-video in jack on your receiver.

4 Connect the S-video in jack on the back of your VCR to the S-video out jack on your receiver.

To connect a VCR using composite video:
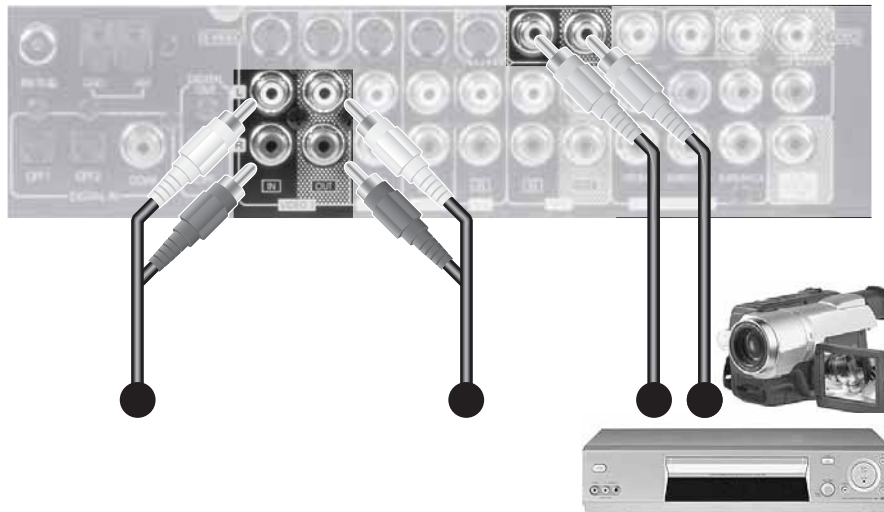
1 Connect the red (R) and white (L) audio out jacks on the back of your VCR to the R and L audio in jacks on your receiver.

2 Connect the red (R) and white (L) audio in jacks on the back of your VCR to the R and L audio out jacks on your receiver.

3 Connect the composite video out jack on the back of your VCR to the composite video in jack on your receiver.

4 Connect the composite video in jack on the back of your VCR to the composite video out jack on your receiver.

Connecting a tape component
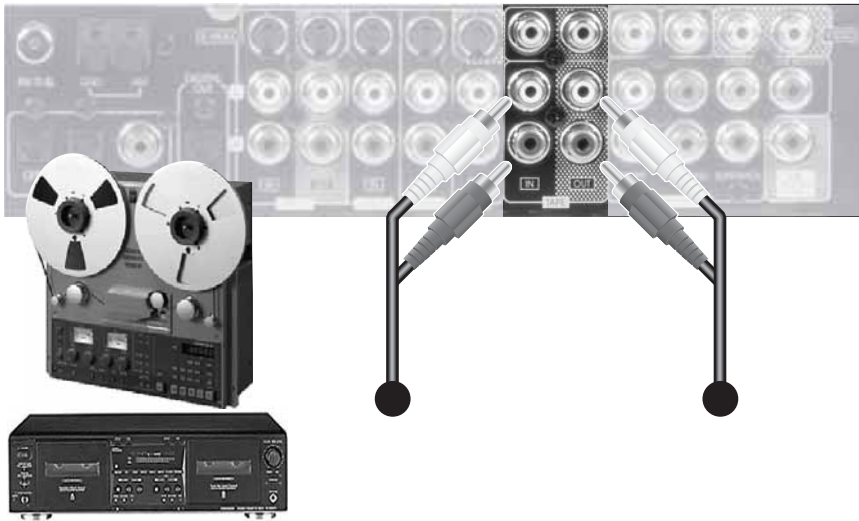

To connect a tape component:

1 Connect the red (R) and white (L) audio out jacks on the back of your tape component to the R and L audio in jacks on your receiver.

2 Connect the red (R) and white (L) audio in jacks on the back of your tape component to the R and L audio out jacks on your receiver.

Connecting an AUX component

The AUX jacks may be connected to an additional audio component such as a CD player, tape deck, or game console.


▶ **To connect an AUX component:**

1 Connect the red (R) and white (L) audio out jacks on the back of your AUX component to the R and L audio in jacks on your receiver.

Connecting a television

This receiver supports S-Video and composite video jacks. As you are making your television (monitor) connections and using your receiver, keep in mind that a signal input into the composite VIDEO IN jack is output to the composite VIDEO OUT jacks and a signal input into the S-VIDEO IN jack is output to the S-VIDEO OUT jacks **and** the composite MONITOR 1 and MONITOR 2 VIDEO OUT jacks. For this reason, we recommend connecting your receiver to your TV using both S-Video and composite video. (S-Video cable not supplied)

To connect your receiver to a television:

1 Connect the Monitor S-Video out jack on the back of your receiver to the S-Video in jack on your television.

2 Connect the Monitor 1 or Monitor 2 composite video out jack on the back of your receiver to the composite video in jack on your television.

Connecting speakers

Speaker placement

Ideal speaker placement varies depending on the size of your room, wall coverings, and other environment variables. The following information depicts typical placement recommendations.
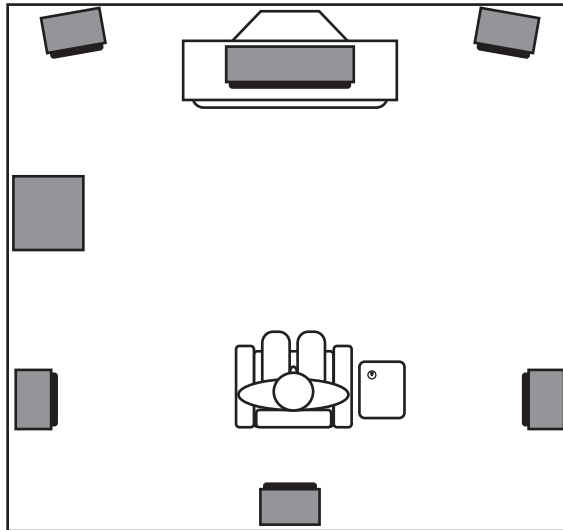
Front left and right speakers and center speaker

■ Place the front speakers so they are no closer to the listening area than the center speaker.

■ Place the center speaker between the front left and right speakers and no further from the listening area than the front speakers. Generally, center speaker placement is made either directly above or directly below the TV.

■ Place each speaker so that sound is aimed at your ears while you are seated in your main listening area.

Surround left and right speakers

■ Place the surround speakers approximately 40 inches (1 meter) above the ear level of a seated listener on the direct left and right or slightly behind the listener.

Surround back speaker

■ Place the surround back speaker at the rear center of your listening area facing toward the listening area at a slightly higher position (0 to 10 inches) than the surround speakers.

■ We recommend installing the surround back speaker at a slightly downward facing angle. This helps prevent the surround back channel signals from reflecting off the TV or screen at the front center.

Subwoofer

■ The powerful deep bass sounds produced by the subwoofer are non-directional, meaning you cannot tell where the sound is coming from. Place the subwoofer anywhere in your room. The closer to a wall or corner that you place your subwoofer the *bassier* the sound becomes.

Making the connections

Connect speakers firmly and correctly according to their channel (left and right) and their polarity (+ and –). If the connections are faulty, the speakers will not reproduce sound. If the polarity of the connections are incorrect, the sound will be unnatural and lack bass.

Warning	Use speakers with an impedance of 6 ohms or above.
	Do not let the bare speaker wires touch each other or any metal part of this receiver. This could damage the receiver and/or the speakers.

To connect speakers to your receiver:

1 Connect the striped-edge speaker cable to the red (positive) speaker cable connector. Connect the non-striped edge speaker cable to the black (negative) speaker cable connector.

Important	Make sure that you clamp down on the bare speaker wire and not on the insulation.

2 Connect the right and left surround speakers and the back surround speaker to the receiver. Match the positive and negative cables from Step 1 to the positive and negative connectors on the receiver.
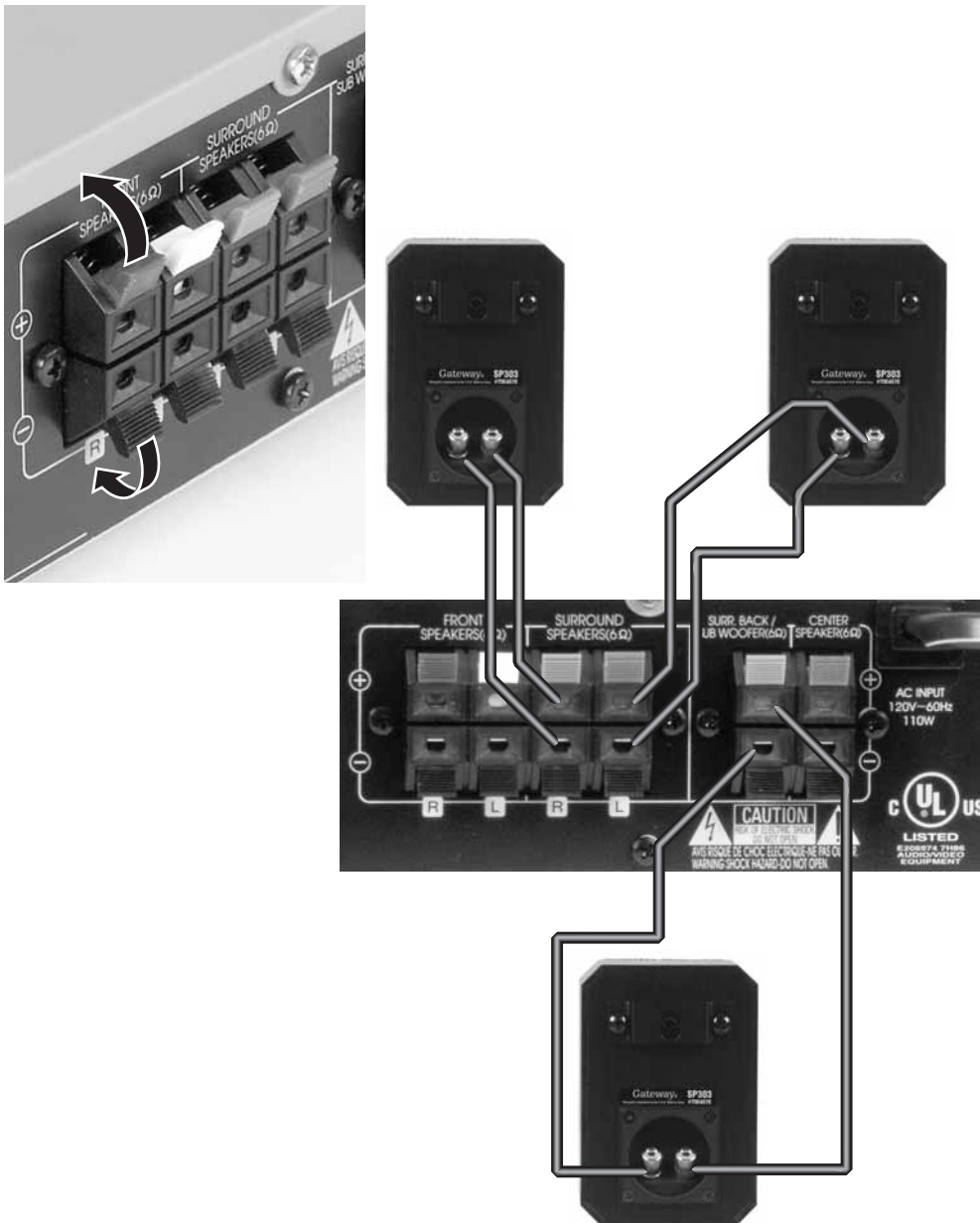
3 Connect the center speaker to the receiver, making sure to match the positive and negative connectors.
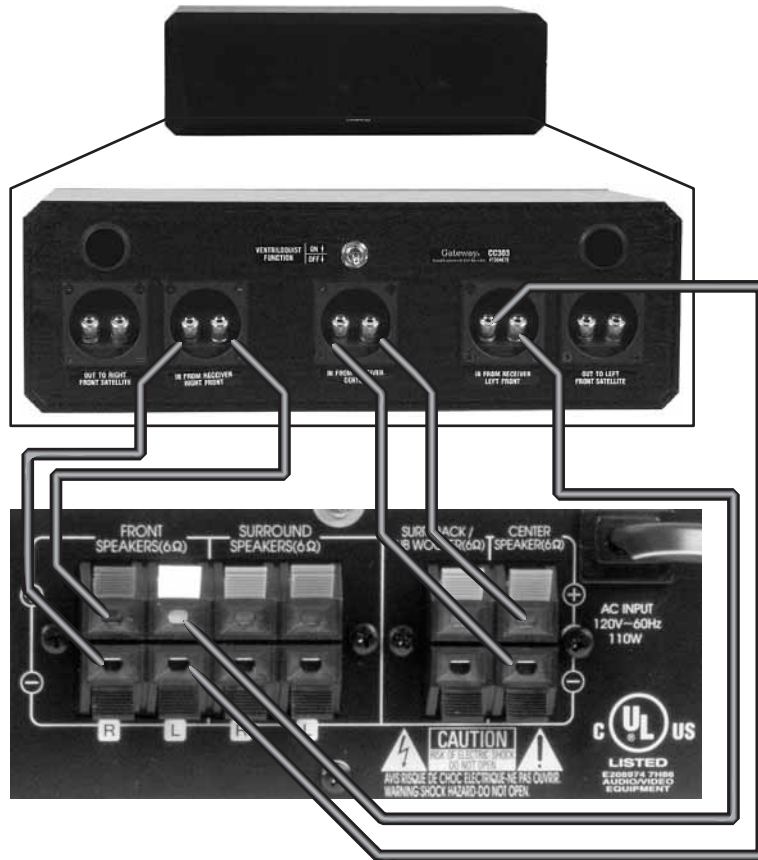
4 Connect the left and right front speakers to the center speaker, making sure to match the positive and negative connectors.

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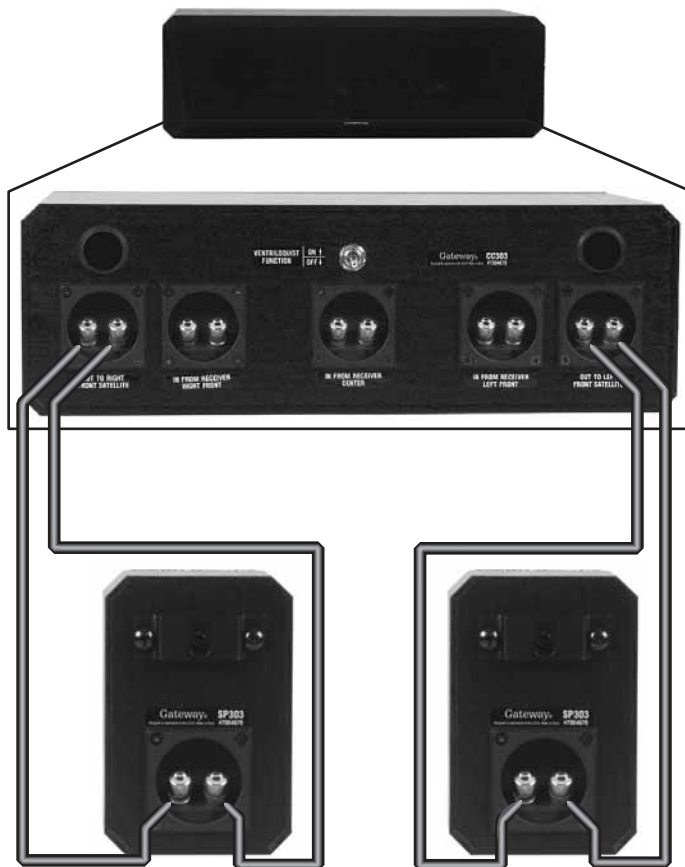
5 Turn the center speaker's **Ventriloquist Function** to **ON**.

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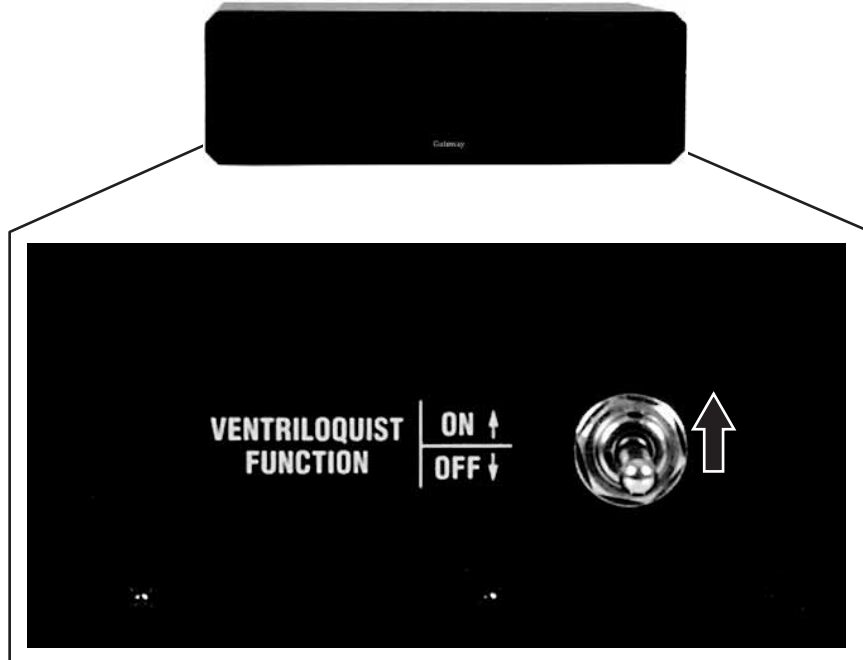
6 Connect the subwoofer to the receiver.

7 Plug in the subwoofer.
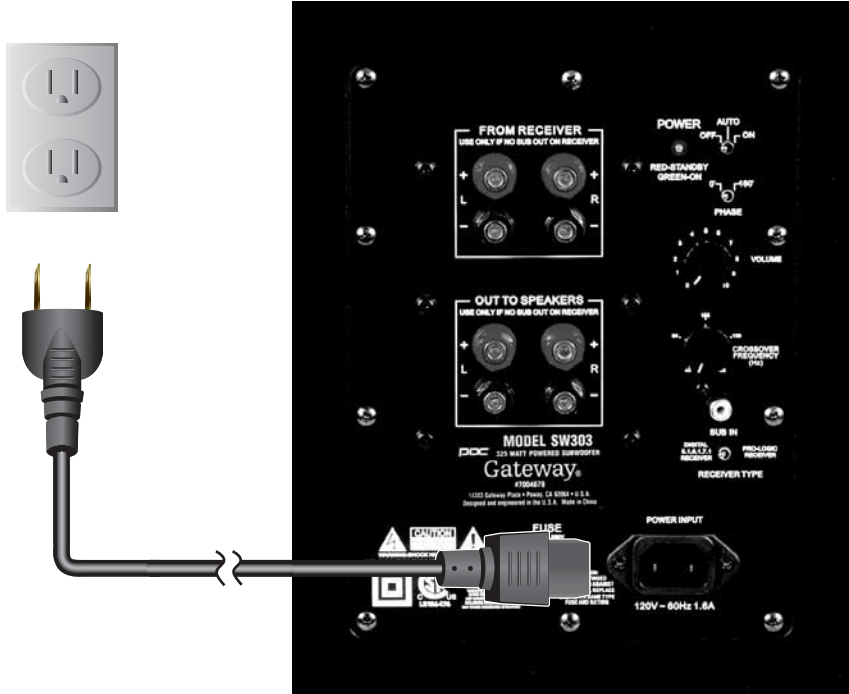
8 Switch the subwoofer to **Digital Receiver**, turn the **Volume** to ~5, then flip the **POWER** switch to **ON**.
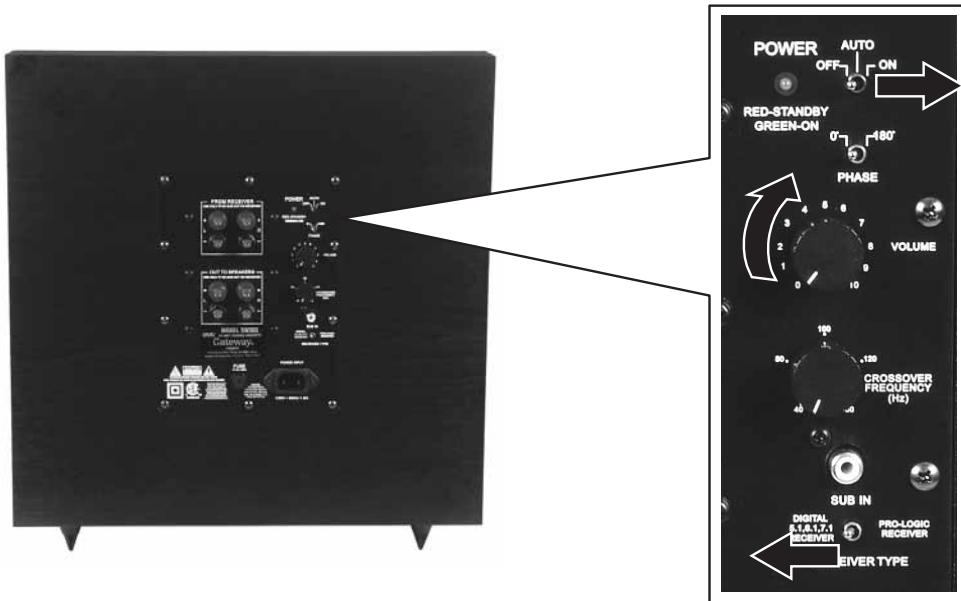
Certain settings need to be made to your receiver to match your KAS-303 speakers. See "Setting up your speakers" on page 39 for more information on setting up and configuring your speakers.

Plugging in your components

After you have made all the connections, plug in your receiver and your connected components.

Using the 3 Receiver

Read this chapter to learn how to:

- ■ Turn the receiver on and off
- ■ Set up the speakers
- ■ Use the universal remote control
- ■ Listen to a program source
- ■ Understand surround sound
- ■ Listen to the radio
- ■ Record analog audio and video
- ■ Record digital audio
- ■ Use the sleep timer
- ■ Adjust the display brightness

Turning the receiver on and off

▶ **To turn the receiver on:**

   1 Press the power button on the receiver. The receiver enters Standby mode. Each subsequent press of the power button on the receiver switches the receiver between Standby mode and off.

   2 Press the power button ⬤ (POWER) on the remote control. The receiver turns on. Each subsequent press of the power button on the remote control switches the receiver between Standby mode and on.

   ◼

▶ **To turn the receiver off:**

   ◼ Press the power button on the receiver. The receiver turns off.

   ◼

Setting up your speakers

Adjusting the speaker settings

After you have installed your receiver and connected all the components, you should adjust the speaker settings for the optimum sound acoustics for your environment and speaker layout.

Setting the type of speakers

The composition and frequency response of the signals from the surround channels adjust automatically according to the combination of speaker types in use.

Select **Large** or **Small** not according to the actual size of the speaker but according to the speaker's capacity for playing low frequency signals.

Crossover Frequency is the frequency (Hz) below which the bass sound of each main speakers is instead sent to the subwoofer or, when not using a subwoofer, speakers set to **Large**.

Large — Select this when connecting speakers that can fully reproduce sounds below the Crossover Frequency of your speakers.

Small — Select this when connecting speakers that cannot fully reproduce sound below the Crossover Frequency. When this setting is selected, sound below the Crossover Frequency is assigned to the subwoofer or, when not using a subwoofer, speakers set to **Large**.

None — Select this when no surround speakers are connected. When this setting is selected, the surround sound signals are sent to the front speakers.

Yes / None — Select **Yes** if a subwoofer is connected. Select **None** if a subwoofer is not connected.

- ■ See the specifications of the speakers that you are connecting. For example, if the frequency range of your speakers is 80 Hz ~ 12 KHz, then the Crossover Frequency is 80 Hz.

- ■ If you do not know the specifications for your speakers, try comparing the sound at both settings (set the volume to a low level so you do not damage the speakers) to determine the correct setting.

- ■ Depending on how you set your speakers, not all options may be available to you. For example, if you set your **Front L/R** speakers to **Large**, you will have **Large**, **Small**, and **None** as options for your **Center** speaker. But if you set your **Front L/R** speakers to **Small**, the only options available for your **Center** speaker will be **Small** and **None**.

Speaker distance settings

When using 5.1 channel surround playback with Dolby Digital or DTS sources, the center and surround speakers should be the same distance from the main listening position as the front speakers. By specifying the distance between the listening position and each speaker, the center and surround speaker's delay times automatically adjust to create the ideal listening environment.

To adjust the speaker settings:

1 Press the Speaker Setup button _{SPK SET} ⬤ on the remote control to cycle between the available Speaker Setting Modes.

2 When the Speaker Setting Mode you want to adjust is selected, press the Adjust Up or Adjust Down -ADJUST- ⬅ ➡ buttons on the remote control to change the speaker setting.

■

Displayed symbol	Corresponding setting
F	Front
C	Center
S	Surround
L	Large
S	Small
N	None

■ When adjusting the Crossover Frequency setting for your subwoofer, the available options are 80 Hz, 120 Hz, 160 Hz, and 200 Hz. Your KAS-303 Home Theater satellite speakers have a range of 150 Hz ~ 18.5 KHz, so set the subwoofer Crossover Frequency to 160 Hz.

You can also adjust speaker settings using your remote control and the OSD. For more information, see "OSD menus and options" on page 66.

You can also adjust speaker settings using the SETUP button on the receiver

Using the universal remote control

Operating components with the universal remote control

▶ To operate components with the universal remote control:

1 Enter the Setup code for each component, other than this receiver, that you want to control. For more information, see "Programming the remote control" on page 43.

2 Turn on the component you want to operate.

3 Press the DEVICE button on the remote control that corresponds to the component you want to operate.

4 Aim the remote control at the remote sensor of the component that you want to operate and press the button that corresponds to the function you want to perform.

60°

7m
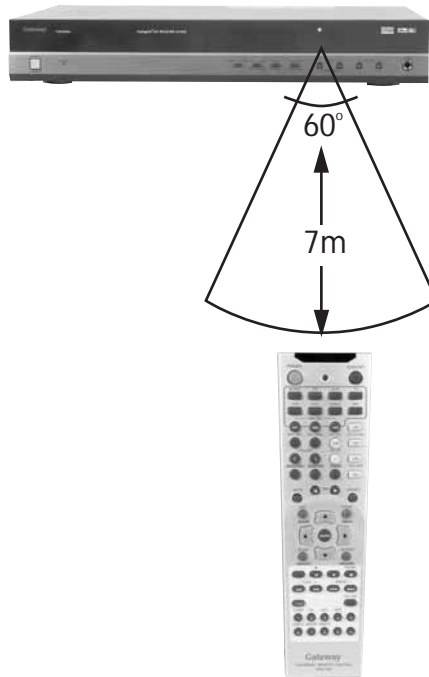
Programming the remote control

This remote control can control up to 8 different components.

Before operating audio and video components, other than this receiver, use this remote control to enter the setup code for each component.

By factory default, 000 is stored in the memory for the CD, DVD, and AUX device buttons. You do not need to enter a code unless the default code of 000 does not work.

Entering a setup code

▶ To enter a setup code:

1 Turn on the component you want to control.

2 Locate the setup code for your connected component. See "Setup Codes" on page 80.

3 While pressing and holding down the ENTER button on the remote control, press the DEVICE button on the remote control for the corresponding component for more than 1 second. The LED flickers once.

The AUDIO DEVICE button is reserved for the receiver and cannot be programmed for other components.

4 While aiming the remote control at the remote sensor on your connected component, enter the 3-digit code that you located in Step 2.

If you entered the code correctly, the LED flickers twice. Test the code by pressing the POWER (or STANDBY) button on the remote control. If your component does not turn off, repeat the procedure using each code listed for your component's manufacturer until you find a code that works.

■

If the LED did not flicker twice, repeat the above procedure and try entering the same code again.

Manufacturers may use different setup codes for the same product category. Check to see if the code you have entered operates as many controls as possible. If only a few functions operate, check to see if another code operates more buttons.

Programming a macro function

Using the macro function, you can program up to 10 remote control button presses into a single button. The universal remote control has 3 macro buttons, M1, M2, and M3.

▶ To program a macro:

1 Press and hold down both the ENTER button on the remote control and the macro button you want to program (M1, M2, or M3). The LED flickers once.

2 First press the DEVICE button for the device that you want to control with this macro, then press the operation buttons you want to program in the order that you want them to execute.

3 Press the ENTER button on the remote control. If the macro was programmed successfully, the LED flickers twice.

■

Remove a macro by following the above procedure except skip Step 2.

Change a macro by programming a new macro into the macro button. The new macro automatically overwrites the old macro.

Using a macro function

▶ To use a macro:

■ Aim the remote control at the remote control sensor of the component that you want to operate, then press the macro button for the macro you want to run.

■

The macro function of this remote control may not work with all components. For example, the codes programmed into a MACRO button transmit at 0.5 second intervals. If the component cannot complete an operation within 0.5 seconds, it may miss the next code. In this example, you would not be able to use that particular macro with the component.

Switching between connected components

To switch between connected components:

1 Press the **Input Selector** button on the receiver or press one of the **Direct Input Selector** buttons on the remote control.

- The available input source changes are: Tuner, Tape, Aux, Video 1, Video 2, Video 3, and 7-Direct.

2 If you selected Aux, Video 1, Video 2, or Video 3, press the **Digital Input** button on the receiver to select the corresponding digital or analog input.

- The available digital or analog inputs are: A(nalog), o(ptical) 1, o(ptical) 2, and c(oaxial) 1

3 Press the **Decoding** button on the receiver or the **Auto** button on the remote control to select the decoding mode you want.

- The available decoding modes are: In-Auto, In-DTS, and In-PCM.

- You cannot select a decoding mode unless you have also selected a digital input source.

- Noise may be generated at the beginning of playback and while searching when you are in **In-Auto** decoding mode during DTS playback. If this happens, switch to **In-DTS** mode.

4 Use the component you selected for playback.

5 Press the up and down **Volume** buttons on the receiver or on the remote control to adjust the volume.

6 If you want to mute the sound, press the **MUTE** button on the remote control.

7 If you want to listen with headphones, connect headphones to the Phones jack on the receiver. Sound to the speakers is automatically turned off and any multi-channel sound is automatically downmixed to a 2-channel (**2-CH DOWNMIX**) downmix mode.

You can also select the digital signal input using your remote control and the OSD. For more information, see "Using the OSD" on page 63.

Surround sound

This receiver incorporates a sophisticated Digital Signal Processor that lets you create optimum sound quality and sound atmosphere in your personal Home Theater.

Surround modes

Your receiver supports multichannel surround modes and 2-channel surround modes.

Multichannel surround modes

Mode	Description
DTS™ Digital Surround	DTS Digital Surround (DTS) is a multichannel digital signal format which handles higher data rates than Dolby Digital.
DTS-ES Extended Surround™	This is a new multichannel digital signal format which greatly improves the 360-degree surround impression and space expression. In addition to the 5.1 channels, DTS-ES Extended Surround also offers the surround back (sometimes also referred to as surround center) channel for surround playback with a total of 6.1 channels. DTS-ES Extended Surround includes the DTS-ES™ Discrete 6.1 and DTS-ES™ Matrix 6.1 signal formats.
DTS Neo: 6™ surround	This mode applies conventional two-channel signals such as digital PCM or analog stereo signals to the high precision digital matrix decoder used for DTS-ES Matrix 6.1 to achieve 6.1-channel surround playback. DTS Neo : 6 includes DTS Neo: 6 Cinema and DTS Neo: 6 Music signal formats.

Mode	Description
Dolby Digital™	Dolby Digital discs support recordings of up to 5.1 channels of digital signals, which reproduce much better sound quality, spatial expansion, and dynamic range characteristics than the previous Dolby Surround effects.
Dolby Digital EX™	This mode uses a matrix decoder to create the back (sometimes referred to as surround center) signal from the surround left and right signals in a Dolby Digital 5.1 channel source and provides 6.1 channel surround playback. For the best results, this mode should be selected during playback of sources recorded in Dolby Digital Surround EX.
	When Dolby Digital EX sources are decoded with a Dolby Digital EX decoder, the format is automatically detected and Dolby Digital EX mode is selected. However, some Dolby Digital EX sources may be detected as Dolby Digital sources. In this case, the Dolby Digital EX mode should be selected manually.
Dolby Pro Logic™	Dolby Pro Logic is a specially encoded two-channel surround format which consists of four channels (front left, center, front right, and surround). The surround channel is monaural and is played through both surround speakers.
Dolby Pro Logic II™ surround	This mode applies conventional two-channel signals such as digital PCM or analog stereo signals as well as Dolby Surround signals to surround processing. Dolby Pro Logic II surround includes Dolby Pro Logic II Cinema, Dolby Pro Logic II Music, and Dolby Virtual signal formats.
MPEG™ Multichannel	Though the number of audio channels is 5.1 (which is the same as Dolby Digital), MPEG Multichannel discs are much better at matching individual sounds to the correct position in the sound stage. MPEG Multichannel works well when using the 7 CH DIRECT INPUTs to playback the sound from an additional multichannel decoder. For details, see to the user's guide for your connected 7-channel component.

2-channel surround modes

The following modes apply conventional 2-channel signals such as digital PCM or analog stereo signals to high performance Digital Signal Processor to recreate sound fields artificially. Select from one of the following 2-channel surround modes:

Mode	Description
Theater	This mode provides the effect of being in a theater -in-the round while watching a play.
Movie	This mode provides the effect of being in a movie theater while watching a movie.
Hall 1/2	This mode provides the ambience of a chamber hall for chamber music or an instrumental solo (Hall 1) or a concert hall for orchestral music or an opera (Hall 2).
Stadium	This mode provides the expansive sound field to achieve the true stadium effect of watching sporting events, such as football.
Church	This mode provides the ambience of a church for baroque, string orchestral, or choral group music.
Club 1/2	This mode creates the sound field of a jazz club with a low ceiling and hard walls (Club 1) or a live club with a relatively spacious floor (Club 2).
Arena 1/2	This mode provides the feeling of a live concert in a medium-sized (Arena 1) or large (Arena 2) arena.
Game	Use this mode for video game sources.
Matrix	This mode reproduces delayed signals from the surround channels emphasizing the sense of expansion for music sources.

For your reference, the sound from each channel can be reproduced according to the surround modes as follows:

Modes	Channels				
	Front L/R	Center	Surround L/R	Surround Back	Subwoofer
DTS	×	×	×		×
DTS ES DISCRETE/MATRIX	×	×	×	×	×
DTS NEO CINEMA/MUSIC	×	×	×	×	×
DOLBY DIGITAL	×	×	×		×
DOLBY DIGITAL EX	×	×	×	×	×
DOLBY PRO LOGIC	×	×	×		×
DOLBY PRO LOGIC II CINEMA/MUSIC	×	×	×		×
DOLBY VIRTUAL	×				×
MPEG	×	×	×		×
MATRIX	×	×	×		×
Other Surround	×	×	×		×
STEREO	×				×
7 CH DIRECT	×	×	×	×	×

Selecting the surround mode

To select the surround mode:

■ Press the left and right **DSP** mode buttons on the remote control to cycle through the surround modes.

The signal format of your selected input source determines the available surround modes.

Signal format of input source	Selected decoding mode	Selectable surround mode *
Dolby Digital 5.1, Dolby Digital EX 6.1 channel sources	IN-AUTO mode	(DOLBY DIGITAL EX), DOLBY DIGITAL, DOLBY VIRTUAL
Dolby Digital 2-channel	IN-AUTO mode	(DOLBY DIGITAL EX), PL II CINEMA, PL II MUSIC, PRO LOGIC, DOLBY VIRTUAL
PCM (2 channel) sources Analog stereo sources	IN-AUTO, IN-PCM mode	PL II CINEMA, PL II MUSIC, PRO LOGIC, DOLBY VIRTUAL, NEO 6 CINEMA, NEO 6 MUSIC, THEATER, MOVIE, HALL 1/2, STADIUM, CHURCH, CLUB 1/2, ARENA 1/2, GAME, MATRIX
DTS sources	IN-AUTO, IN-DTS mode	corresponding DTS mode
MPEG sources	IN-AUTO mode	corresponding MPEG mode

* Items in parenthesis are only selectable when the surround back speaker setting is not **N**.

■ When 96 kHz PCM signals are input, stereo mode is selected automatically and surround mode cannot be selected.

■ When DTS or MPEG signals are input in the IN-AUTO or IN-DTS mode, the corresponding DTS or MPEG modes are selected regardless of DSP MODE button actions.

■ When the selected decoding mode is not matched to the input signal format, the DIGITAL indicator flickers and no sound is heard. Be sure to select the required decoding mode and the available surround mode according to the input signal format.

■ When the 7 CH DIRECT is selected as an input source, the decoding and surround modes cannot be selected.

■ When the selected input signals are not digital signals, the surround mode cannot be selected.

■ When using headphones, the surround mode cannot be selected.

To select stereo mode:

■ Press the **Stereo** button on the remote control to cancel surround mode and switch to stereo mode.

If Stereo mode is applied to a multi-channel DTS, Dolby Digital, or MPEG signal, the signal is downmixed to a 2-channel downmix (**2-CH DOWNMIX**) mode, allowing the multi-channel signal to be reproduced through only two speakers or through headphones.

To cancel Stereo mode and switch back to surround mode, use the **DSP Mode** buttons on your remote control.

Adjusting the channel levels

You can adjust your channel levels using test tones or manually. Ideally you should use the test tone method first and then make any additional adjustments through the manual process.

To adjust channel levels using test tones:

1 Press the **T. Tone** button on the remote control. The test tone plays out of each channel in a 2-second cycle. If a speaker setting is **N**, the test tone will not play out of that channel.

2 Press the **CH/LEVEL** up and down buttons on the remote control to adjust the level for each channel.

3 Press the **T. Tone** button on the remote control to cancel the test tone.

▶ To adjust channel levels manually:

1 Press the **Ch. SEL** button on the remote control. Each time the button is pressed, the corresponding channel is selected and displayed for several seconds.

- If the receiver is set to Stereo or Dolby Virtual mode or if the speaker setting is set to **N**, center, surround L/R, surround back, or the subwoofer channel cannot be selected.

- If the headphones are connected, you can only select the front L/R channel.

2 Press the **CH/LEVEL** up and down buttons on the remote control to adjust the level of the selected channel.

3 Repeat Step 1 and Step 2 to adjust each channel level.

Storing channel levels in memory

You can store channel level settings in memory. This lets you change the channel levels, then recall the stored settings.

▶ To store channel levels in memory:

1 Press the **SETUP** button on the receiver for more than 2 seconds to enter Setup mode.

2 While in Setup mode, repeatedly press the **SETUP** button on the receiver until **P CALL** appears.

3 While displaying **P CALL**, press the **ADJUST** up and down buttons on the receiver to select **P MEMORY**.

4 Press the **DECODING** button on the receiver to confirm.

▶ **To recall channel levels from memory:**

1 Press the **SETUP** button on the receiver for more than 2 seconds to enter Setup mode.

2 While in Setup mode, repeatedly press the **SETUP** button on the receiver until **P CALL** displays.

3 While displaying **P CALL**, press the **ADJUST** up and down buttons on the receiver to select **P CALL**.

4 Press the **DECODING** button on the receiver to confirm.

■

You can also work with channel levels using your remote control and the OSD. For more information, see "OSD menus and options" on page 66.

Adjusting the LFE level

You can adjust the Low Frequency Effect (LFE) levels in Dolby Digital, DTS, and MPEG program sources.

▶ **To adjust the LFE level:**

1 Press the **SETUP** button on the receiver for more than 2 seconds to enter Setup mode.

2 While in Setup mode, repeatedly press the **SETUP** button on the receiver until **DD L** displays.

3 While displaying **DD L**, press the **DECODING** button on the receiver to cycle between the available modes: Dolby Digital LFE (**DD L**), DTS LFE (**DTS L**), and MPEG LFE (**MP L**).

4 While displaying the LFE mode you want, press the **ADJUST** up and down buttons on the receiver to adjust the level.

■

You can also adjust the LFE level using your remote control and the OSD. For more information, see "OSD menus and options" on page 66.

Adjusting the tone

You can adjust the tone (bass and treble).

To adjust tone:

1   Press the **SETUP** button on the receiver for more than 2 seconds to enter Setup mode.

2   While in Setup mode, repeatedly press the **SETUP** button on the receiver until **TONE OFF** or **BASS** appears.

3   While displaying **BASS**, press the **DECODING** button on the receiver to cycle between the available modes: **BASS**, **TRBL**, and **TONE ON**.

4   While displaying the tone mode you want, press the **ADJUST** up and down buttons on the receiver to adjust the tone.

You can also adjust the tone settings using your remote control and the OSD. For more information, see "OSD menus and options" on page 66.

Compressing the dynamic range

You can adjust the compression of Dolby Digital program sources to minimize the volume difference between high and low levels. This feature is useful if you are listening to Dolby Digital program sources at low volume levels. This feature can only be used for Dolby Digital program sources.

To compress the dynamic range of Dolby Digital program sources:

1   Press the **SETUP** button on the receiver for more than 2 seconds to enter Setup mode.

2   While in Setup mode, repeatedly press the **SETUP** button on the receiver until **DYNR 0.0** appears.

3 While displaying **DYNR 0.0**, press the **ADJUST** up and down buttons on the receiver to cycle between the available modes: **DYNR 0.0: Off**, **DYNR 0.5: Low Compression**, and **DYNR 1.0: High Compression**.

4 While displaying the tone mode you want, press the **ADJUST** up and down buttons on the receiver to adjust the tone.

This function may not be available in some Dolby Digital program sources.

You can also adjust the dynamic range compression levels using your remote control and the OSD. For more information, see "OSD menus and options" on page 66.

Adjusting Dolby Pro Logic II Music parameters

You can adjust the surround parameters of Dolby Pro Logic II Music mode.

To adjust Dolby Pro Logic II Music parameters:

1 Press the **PL II PARA.** button on the remote control to select from the following parameters:

- Panorama mode (**PANO**) – Extends the front stereo image to include the surround speakers to give a *wraparound* effect with side wall imaging.
  Range: OFF or ON (default is OFF)

- Center width control (**C-WID**) – Adjusts the center image so it is heard from only the center channel speaker, only from the left/right speakers as a phantom image, or from all three front speakers.
  Range: 0 to 7 (default is 0)

- Dimension control (**DIMEN**) – Adjusts the sound field towards the front or towards the rear.
  Range: -4 to +2 (default is 0)

2 While displaying the parameter you want, press the **ADJUST** buttons on the remote control to change the values.

Listening to the radio

Selecting the tuner

▶ To select the tuner:

1 Press the **INPUT SELECTOR** button on the receiver or the **TUNER** button on the remote control to select the tuner.

2 Press the **AM/FM MODE** button on the receiver to cycle between the following bands: **FM STEREO**, **FM MONO**, and **AM**.

■

When FM stereo broadcasts are poor because of weak broadcast signals, select the FM mono mode to reduce the noise. The FM broadcasts are reduced to monaural sound.

Manual tuning

▶ To manually tune the tuner:

1 If you are using the buttons on the receiver, repeatedly press the **TUNE MODE** button on the receiver to select *Tuning mode*. The **PRESET** light turns off.

- OR -

If you are using your remote control, go to the next step.

2 Repeatedly press the up and down **TUNING/PRESET** buttons on the receiver or the – and + **TUNE** buttons on the remote control until the frequency you want is set.

■

Auto tuning

▶ To automatically tune the tuner:

1 If you are using the buttons on the receiver, repeatedly press the **TUNE MODE** button on the receiver to select *Tuning mode*. The **PRESET** light turns off.

- OR -

If you are using your remote control, go to the next step.

2 Press the up and down **TUNING/PRESET** buttons on the receiver or the – and + **TUNE** buttons on the remote control for more than 0.5 seconds. The tuner searches until a station of sufficient strength is found.

■

Weak stations are skipped during auto tuning. To tune in a weak station, use manual tuning.

Memorizing radio stations

You can store up to 30 radio stations in memory.

▶ To memorize radio stations:

1 Tune in a station using manual or auto tuning.

2 Press the **MEMORY** button on the receiver. The **MEM** light flickers for 5 seconds.

3 Press the up and down **TUNING/PRESET** buttons on the receiver or the – and + **PRESET** buttons on the remote control to select the desired preset number (1~30) you want, then press the **MEMORY** button on the receiver.

■

You can erase a stored frequency by storing another frequency in its place.

Tuning to preset stations

▶ To tune to preset stations:

1 If you are using the buttons on the receiver, repeatedly press the **TUNE MODE** button on the receiver to select *Preset mode.* The **PRESET** light turns on.

- OR -

If you are using your remote control, go to the next step.

2 Press the up and down **TUNING/PRESET** buttons on the receiver or the – and + **PRESET** buttons on the remote control to select the desired preset number (1~30).

■

You can scan all of the preset stations in sequence by pressing the **P. SCAN** button on your remote control. The receiver pauses at each preset station for 5 seconds. When the station you want is tuned, press the button again to stop scanning.

Analog Audio/Video recording

■ The analog signals (except front L/R channel) from the 7 CH DIRECT inputs and the digital signals from the coaxial or optical digital inputs cannot be recorded.

■ The volume and tone (bass and treble) settings have no effect on the recording signals.

▶ To record with TAPE:

1 Press the **INPUT SELECTOR** button on the receiver or the direct input selector button on the remote control to select the input for your recording source. You cannot select **TAPE**.

2 Start recording on the connected TAPE component.

3 Start playing on the selected input (recording source).

■

To dub from video components onto VIDEO 1:

1 Press the **INPUT SELECTOR** button on the receiver or the **VIDEO2** or **VIDEO3** direct input selector button on the remote control to select **VIDEO2** or **VIDEO3** as your recording source.

2 Start recording on the connected VIDEO 1 component.

3 Start playing on the VIDEO 2 or VIDEO 3 selected input (recording source).

To dub separate audio and video source signals onto VIDEO 1:

1 Press the **INPUT SELECTOR** button on the receiver or the **AUX** direct input selector button on the remote control to select **AUX** as your audio recording source. Make sure your audio recording source, such as a CD player, is connected to the **AUX** jacks.

2 Press the **OSD** button on the remote control and select **FUNCTION SELECT**, **VIDEO SELECT**, then select **VIDEO 2**.

3 Start recording on the connected VIDEO 1 component.

4 Start playing on the AUX and the VIDEO 2 inputs (recording source).

Digital Audio recording with an MD recorder

■ You can only record digitally (without digital to analog conversion) when the OPTICAL DIGITAL OUT jack of this receiver is connected to the OPTICAL DIGITAL IN jack of an MD recorder or CD recorder.

■ Digital recording is available for the digital audio program sources such as CDs, MDs, and some DVDs.

■ In most DVDs, as well as some CDs, digital recording may not be available (depending on the signal format).

■ There are some restrictions on recording digital signals. See the operating instructions of your digital recording equipment to see which restrictions apply to you.

. ▶ To record digital audio with an MD recorder:

1 Press the **INPUT SELECTOR** button on the receiver or the **AUX**, **VIDEO1**, **VIDEO2**, or **VIDEO3** direct input selector button on the remote control to select **AUX**, **VIDEO1**, **VIDEO2**, or **VIDEO3** as the input for your recording source.

2 Press the **DIGITAL INPUT** button on the receiver to select the **o(ptical) 1**, **o(ptical) 2**, or **c(oaxial) 1** as your digital signal input.

3 Start recording on the component connected to **OPTICAL DIGITAL OUT**.

4 Start playing on the selected digital input (recording source).

■

You can also select the digital signal input using your remote control and the OSD. For more information, see "Using the OSD" on page 63.

Using the sleep timer

Use the sleep timer to automatically turn the receiver off after a specified period of time.

. ▶ To use the sleep timer:

■ Press the **SLEEP** button on the remote control to cycle between the following sleep timer settings: **10**, **20**, **30**, **60**, **90**, and **OFF**. The **SLEEP** light turns on.

■

Adjusting the display brightness

You can dim or turn off the receiver's display.

. ▶ To adjust the display brightness:

■ Press the **DIMMER** button on the remote control to cycle between the following brightness settings: **ON**, **dimmer**, and **OFF**.

■

In the OFF display mode, press any button to restore the display to ON mode.

4
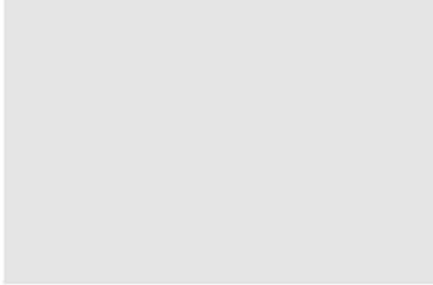
Using the OSD

Read this chapter to learn how to adjust your receiver settings from the on-screen display (OSD).

Displaying the current status

When the **AUTO OSD** is set to **ON** the receiver displays status information. The information displays for several seconds then automatically turns off.

One example of displayed status information is shown below.

**Displayed status information when selecting TEST TONE mode**
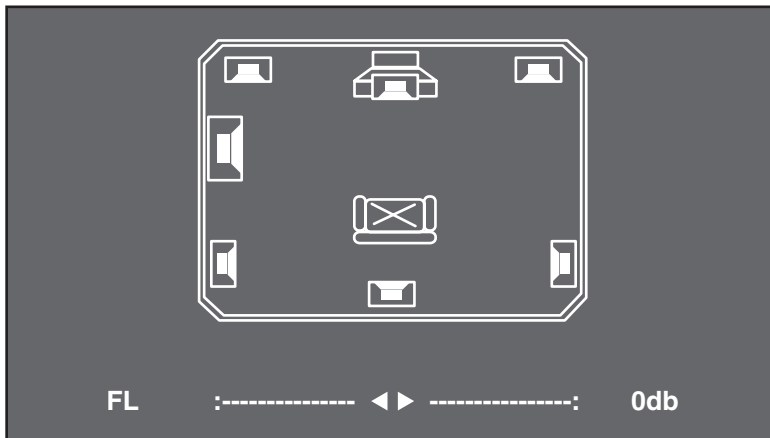
Using the Menu screen

Navigate the Menu screen using the cursor control (▶, ▲, ◀, and ▼),

OSD (◯), and ENTER (⬭) buttons on your remote control.

▶ To adjust settings from the OSD:

1 Press the **OSD** button on the remote control. The Main Menu opens.

MAIN MENU

▶ SPEAKER   SETUP
    FUNCTION   SELECT
    SURROUND   MODE
    SH LEVEL   SETUP
    AUTO OSD   :   [ON]

OSD : QUIT   ▲,▼   : MOVE
ENTER :   SELECT   OR   CHANGE
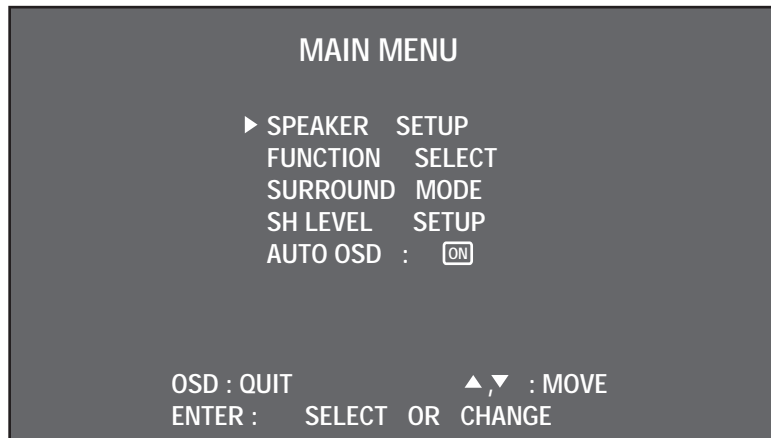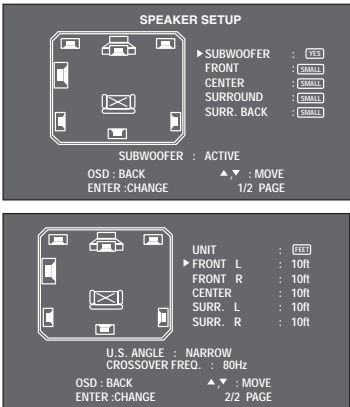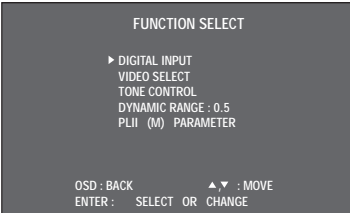
Press the **OSD** button on the remote control again to close the Main Menu.
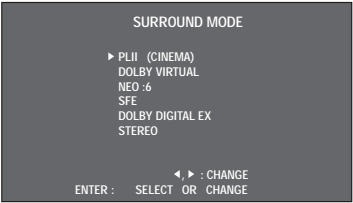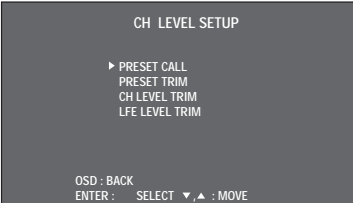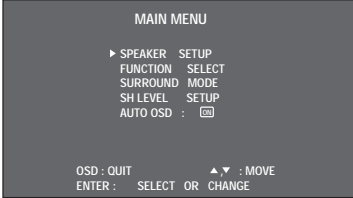
2 Press the cursor up and down buttons on the remote control to select the menu item you want.

3 Press **Enter** on the remote control to confirm your selection.

4 Press the cursor up and down buttons on the remote control to select the option you want.

5 Follow the on-screen instructions to adjust the option.

■

OSD menus and options

Use these OSD menus and options to adjust various setting for your receiver.

Menu	OSD Display	Description
Speaker Setup		Configure Speaker settings. Options include: Page 1/2 ■ **Subwoofer** – Set to Yes or No. ■ **Front** – Set size. ■ **Center** – Set size. ■ **Surround** – Set size. ■ **Surround Back** – Set size. ■ **Subwoofer** – Set type. Page 2/2 ■ **Unit** – Set english or metric. ■ **Front L** – Set distance. ■ **Front R** – Set distance. ■ **Center** – Set distance. ■ **Surround Left** – Set distance. ■ **Surround Right** – Set distance. ■ **V.S. Angle** – Set angle. ■ **Crossover Frequency** – Set subwoofer crossover frequency.
Function Select		Configure Function settings. Options include: ■ **Digital Input** – Configure digital inputs. ■ **Video Select** – Configure video dubbing settings. ■ **Tone Control** – Configure tone (bass/treble) settings. ■ **Dynamic Range** – Set dynamic range. ■ **PLII Parameter** – Adjust the Dolby Pro Logic II Music parameter.

Menu	OSD Display	Description
Surround Mode	SURROUND MODE ▶ PLII (CINEMA) DOLBY VIRTUAL NEO :6 SFE DOLBY DIGITAL EX STEREO ◀, ▶ : CHANGE ENTER : SELECT OR CHANGE	Configure the Surround mode settings. The displayed surround modes change depending on the format of the selected input signal. Options can include: ▪ **PLII** ▪ **Dolby** ▪ **NEO** ▪ **SFE** ▪ **Dolby Digital** ▪ **Stereo**
Channel Level Setup	CH LEVEL SETUP ▶ PRESET CALL PRESET TRIM CH LEVEL TRIM LFE LEVEL TRIM OSD : BACK ENTER : SELECT ▼,▲ : MOVE	Configure Channel Level settings such as Preset Trim and Channel Level Trim. See "Adjusting the channel levels" on page 52.
Auto OSD	MAIN MENU ▶ SPEAKER SETUP FUNCTION SELECT SURROUND MODE SH LEVEL SETUP AUTO OSD : ON OSD : QUIT ▲,▼ : MOVE ENTER : SELECT OR CHANGE	Cycle the Auto OSD setting between On and Off by pressing the **Enter** button on the remote control.

Maintaining and Troubleshooting Your Receiver

5

Read this chapter to learn how to maintain and troubleshoot your receiver.

Cleaning and maintenance

- Your receiver is cooled by air circulated through the vents on the bottom of the case. Keep these vents free of dust. With the receiver turned off and unplugged, brush the dust away from the vents with a damp cloth. Be careful not to drip any water into the vents. Do not attempt to clean dust from the inside of your receiver.

- Do not use abrasive or solvent cleaners because they can damage the finish.

- Do not allow any excessive water or moisture to come into contact with the surface of the receiver. If water or moisture gets inside your receiver, operating problems and electrical and shock hazards may result.

- Do not scratch or hit the case with your fingers or any hard objects.

Troubleshooting

As a general troubleshooting step turn you receiver off, then turn it on again.

This section provides some solutions to common problems you may experience with your receiver.

If the problem continues, initialize your receiver by following the procedure in "Initializing the receiver" on page 72.

No power
- Connect the power cord securely.

- Check the outlet using a lamp or another appliance.

Power shuts off abruptly during operation.
- Switch off the power and check the speaker connections.

- Adjust the speaker settings correctly.

- Lower the volume.

No sound
- Check the speaker connections.

- Adjust the master volume.

- Press the MUTE button to cancel the muting effect.

- Check component connections.

- Check the selected input source.

No sound from the surround speakers
- Select a surround mode.

- Adjust master volume and surround level.

- Select the desired surround speaker setting.

- Select a stereo or surround source.

No sound from the center speaker
- Select the desired surround speaker setting.

- Adjust master volume and center level.

- Make sure center speaker setting is not set to **N**.

No sound from the surround back speaker
- Under the proper situations, perform the 6.1 surround playback.

- Adjust master volume and surround back level.

- Select the desired surround back speaker setting.

Stations cannot be received
- Connect an antenna.

- Move the antenna and retry tuning.

- Tune in the desired station frequency.

Preset stations cannot be received
- Memorize the correct station frequency.

- Memorize the stations again.

Poor FM reception
- Connect an antenna.

- Change the position of the antenna.

Continuous hissing noise during FM reception, especially when a stereo broadcast is received.
- Change the position of the antenna.
- Install an outdoor antenna.

Continuous or intermittent reception, especially at night. hissing noise during AM
- Keep the receiver away from noise sources such as, motors, fluorescent lamps, and lightning.
- Install an outdoor AM antenna.

Remote control unit does not operate.
- Replace the batteries.
- Remove any obstacles blocking the remote sensor.

OSD function is not available
- Make proper video connections.

Initializing the receiver

If the display or operation of the receiver is not performing correctly, you can initialize the receiver by performing the following procedure.

Initializing the receiver resets any stored settings back to factory defaults. You will have to reprogram any custom stored settings.

To initialize the receiver:

1 While in Standby mode, press the **SETUP** and **DECODING** buttons at the same time.

2 After you see the flickering Standby indicator, release the buttons.

Technical support

Telephone support

For customer service and support, call 1-800-846-2301 between 7 am and 10pm Central Time Monday through Friday.

Internet

For technical support, go to the Gateway Support Web site at support.gateway.com.

Specifications and Setup Codes

A

Use this appendix as a reference for your receiver's specifications and setup codes.

Specifications

LN-520 receiver specifications

Amplifier	Power output (stereo mode): 6 Ω, THD 0.3%, 40 Hz~20 kHz | 2×100 W
	Total harmonic distortion: 6 Ω, 50 W, 1 kHz | 0.09%
	Intermodulation distortion: 60 Hz : 7 kHz= 4 : 1 SMPTE, 6 ., 100 W | 0.1%
	Input sensitivity: 47 kΩ, Line (AUX) | 200 mV
	Signal to noise ratio, IHF "A" weighted: Line (TAPE) | 95 dB
	Frequency response: Line (AUX, TAPE), 20 Hz~44 kHz | ±3 dB
	Output level: TAPE OUT, 2.2 kΩ | 180 mV
	Bass/Treble control, 100 Hz/10 kHz | ±10 dB
	Surround mode, only channel driven:
	▪ Front power output, 6 Ω, 1 kHz, THD 0.3% | 100 W+100 W ▪ Center power output, 6 Ω, 1 kHz, THD 0.3% | 100 W ▪ Surround power output, 6 Ω, 1 kHz, THD 0.3% | 100 W+100 W ▪ Surround back power output, 6 Ω, 1 kHz, THD 0.3% | 100 W
Digital Audio	Sampling frequency | 32, 44.1, 48, 96 kHz
	Digital input level: Coaxial, 75 Ω | 0.5 Vp-p Optical, 660 nm | -15 ~ -21 dBm
Video	Video format | NTSC
	Input sensitivity (=Output level), 75Ω
	▪ Video (Composite (normal)) | 1 Vp-p ▪ S-Video (luminance signal) | 1 Vp-p ▪ (chrominance signal) | 0.286 Vp-p
FM Tuner	Tuning frequency range | 87.5~108 MHz
	Usable sensitivity, THD 3%, S/N 30 dB | 17.2 dBf
	50 dB quieting sensitivity, mono/stereo | 20.8/41.2 dBf

Signal to noise ratio, 1 mV, mono/stereo | 72/65 dB

Total harmonic distortion, 1 kHz, mono/stereo | 0.2/0.4%

Frequency response, 20 Hz~15 kHz | ±1 dB

Stereo separation, 65 dBf, 1 kHz | 45 dB

Capture ratio | 4 dB

IF rejection ratio | 120 dB

AM Tuner   Tuning frequency range | 520~1710 kHz

Usable sensitivity | 500 μV/m

Signal to noise ratio | 40 dB

Selectivity | 25 dB

General   Power supply | 120 V~60 Hz

Power consumption | 110 W

Dimensions (W×H×D) | 17 1/8 × 2 7/8 × 10 inches (435 × 73.5 × 254 mm)

Weight (Net) | 4.2 kg (9.3 lbs)

Note: Design and specifications are subject to change without notice for improvements.

KAS-303 speakers specifications

Satellites	Video-shielded, 2.5 in (6.4 cm) full range driven
	Enclosure: Black vinyl laminated MDF
	Dimensions: 5.75 in (14.6 cm) H × 3.875 in (9.8 cm) W × 3.5 in (8.9 cm) D
Center-Channels	Video-shielded, two 4 in (10.2 cm) × 6 in (15.2 cm) woofers, one 2.5 in (6.4 cm) mid-high driver
	Enclosure: Black vinyl laminated MDF
	Dimensions: 5.25 in (13.3 cm) H × 16.5 in (41.9 cm) W × 8.75 in (22.2 cm) D
System Specifications (including subwoofers)	System Frequency Response: 23Hz.- 18.5kHz +/- 3dB
	Characteristic Sensitivity: 90 dB @ 1 watt, 1 meter
	Nominal Impedance: 8 ohms

SW303 subwoofer specifications

Design	Venturi ported system
Amplifier Power	150 watts RMS (400 max.)
Signal-to-Noise Ratio	Greater than 80 dB Damping factor >500
Crossover	40-180 Hz. (user variable), active low-pass, 24 dB/octave
Subsonic Filter	18 dB/octave below 20 Hz.
Driver Complement	One 10 in(25.4 cm) long-throw woofer
Frequency Response	23-180 Hz.+/- 3dB variable
Output	Normalized 1 meter maximum SPL 112 dB average from 27 Hz.-100 Hz.
Dimensions	18.5 in (47 cm) H × 17 in (43.2 cm) W × 14 in (35.6 cm) D
Shipping Weight	41 lbs. (18.6 kg.)
Finish	Black laminate

Setup Codes

TV setup codes

AOC	005	003			
Admiral	041	031			
Aiko	014				
Akai	005				
Alaron	026				
Ambassador	024				
America Action	027				
Ampro	043				
Anam	027	047	048	049	
Audiovox	030	027	014	034	
Baysonic	027				
Belcor	003				
Bell & Howell	019	001			
Bradford	027				
Brockwood	003				
Broksonic	028	031			
CXC	027				
Candle	005	011			
Carnivale	005				
Carver	010				
Celebrity	050				
Cineral	030	014			
Citizen	012	005	011	006	014
Concerto	011				
Contec	027				

Craig	027				
Crosley	010				
Crown	027	006			
Curtis Mathes	007	010	019	008	030	041
	012	005	016	011	001	006
	022	032	038	040		
Daewoo	030	003	006	014	034	035
Daytron	003				
Denon	016				
Dumont	002	003			
Dwin	044	036			
Electroband	050				
Emerson	019	028	031	027	029	025
	003	026	006	024	034	035
Envision	005				
Fisher	019				
Fujitsu	026				
Funai	027	026	023		
Futuretech	027				
GE	007	008	030	041	029	025
	004	015	038	040		
Gibralter	002	005	003		
Goldstar	005	025	003	011	
Gradiente	009	011			
Grunpy	027	026			
Hallmark	025				
Harley Davidson	026				
Harman/Kardon	010				
Havard	027				

Hitachi	016	011	018		
Infinity	010				
Inteq	002				
JBL	010				
JCB	050				
JVC	009	046			
KEC	027				
KTV	027	005	006		
Kenwood	005	003			
LG	011	003			
LXI	007	010	019	020	025
Logik	001				
Luxman	011				
MGA	017	005	025	003	
MTC	012	005	003	011	
Magnavox	010	005	026		
Magestic	001				
Marantz	010	005			
Matsushita	042				
Magatron	025	016			
Memorex	019	042	031	017	025	011
	001				
Midland	007	002	008	006	015
Minutz	004				
Mitsubishi	041	017	025	003	
Motorola	041				
Multitech	027				
NAD	020	025	022		
NEC	005	003	011		
NTC	014				

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Nikko	005	025	014			
Onwa	027					
Optimus	019	042	022			
Optonica	041	021				
Orion	028	031	026			
Panasonic	008	042				
Penney	007	020	008	012	005	025
	004	003	011	006	015	040
Pilco	010	031	005	016	003	
Philips	010					
Pilot	005	003	006			
Pioneer	022					
Portland	003	006	014			
Prism	008					
Proscan	007					
Proton	025	032				
Pulsar	002	003				
Quasar	008	042	021			
RCA	007	008	041	003	013	015
	037	038	039	040		
Radio Shack	007	019	021	027	005	025
	003	011	006			
Realistic	019	021	027	005	025	003
	011	006				
Runco	002	005	033			
SSS	027	003				
Sampo	005	006				
Samsung	012	005	025	003	011	045
Samsux	006					

Sansei	030					
Sansui	031					
Sanyo	019					
Scimitsu	003					
Scotch	025					
Scott	028	027	025	003	026	
Sears	007	010	019	020	025	026
	011	006				
Semivox	027					
Semp	020					
Sharp	041	021	006			
Sherwood	000					
Shogun	003					
Signature	001					
Sony	050					
Soundesign	027	025	026			
Squareview	023					
Starlite	027					
Supreme	050					
Sylvania	010	005				
Symphonic	023					
TMK	025	011	024			
Tandy	041					
Technics	008	042				
Technoi Ace	026					
Techwood	008	011				
Teknika	010	027	017	012	003	026
	011	001	006	014		
Telefunken	011					
Toshiba	019	020	012			

Totevision	006					
Vector Research	005					
Victor	009					
Vidikron	010					
Vidtech	025	003				
Wards	010	021	005	025	004	003
	026	011	001			
White Westinghouse	031	034	035			
Yamaha	005	003				
Zenith	002	031	001	014		

VCR setup codes

Admiral	027	021		
Adventura	000			
Aiko	025			
Aiwa	005	000		
Akai	026			
America Action	025			
America High	004			
Asha	023			
Audiovox	005			
Beaumark	023			
Bell & Howell	017			
Brocksonic	021			
Broksonic	020	018	021	001
CCE	015	025		
Calix	005			

Canon	004				
Carver	081				
Cineral	025				
Citizen	005	025			
Colt	015				
Craig	005	012	023	015	024
Curtis Mathes	013	004	026	028	
Cybernex	023				
Daewoo	010	025			
Denon	008				
Dynatech	000				
Electrohome	005				
Electrophonic	005				
Emerex	002				
Emerson	005	020	000	018	009	021
	001	025			
Fisher	012	017			
Fuji	004	003			
Funai	000				
GE	013	004	027	023	
Garrard	000				
Go Video	052				
GoldStar	005	006			
Gradiente	000				
HI-Q	012				
Harley Davidson	000				
Harman/Kardon	016	006			

Harwood	015				
Headquarter	011				
Hitachi	000	008	026		
Hughes Net.Sys	008				
JVC	014	026			
Jensen	026				
KEC	005	025			
KLH	015				
Kenwood	014	026	006		
Kodak	004	005			
LXI	005				
Lloyd's	000				
Logik	015				
MEI	004				
MGA	023	009			
MGN Technology	023				
MTC	023	000			
Magnasonic	025				
Magnavox	004	007	016	000	019
Magnin	023				
Marantz	004	016			
Marta	005				
Matsushita	004	028	029		
Memorex	004	005	027	007	012	023
	000	017	021	011	031	032
Minolta	008				
Mitsubishi	027	014	009		
Motorola	004	027			
Multitech	000	015			

NEC	017	014	026	006	
Nikko	005				
Noblex	023				
Olympus	004				
Opimus	005	027	017	028	029	030
	031	032			
Orion	020	021	001		
Panasonic	004	028	022	029	031
Penny	004	005	023	008	006
Pentax	008				
Philco	004	021			
Philips	004	016			
Pilot	005				
Pioneer	014				
Profitronic	023				
Proscan	013				
Protec	015				
Pulsar	007				
Quarter	011				
Quartz	011				
Quasar	004	028	029	031	
RCA	013	004	027	023	008	019
Radio Shack	000				
Radix	005				
Randex	005				
Realistic	004	005	027	012	000	017
	011				
Runco	007				
STS	008				

Samsung	023	010	033		
Sanky	027	007			
Sansui	000	014	021	026	024
Sanyo	012	023	017	011	
Scott	020	010	018	009	
Sears	004	005	012	000	008	017
	011				
Semp	010				
Sharp	027				
Shintom	015				
Shogun	023				
Singer	015				
Sony	004	002	000	003	
Syvania	004	016	000	009	
Symphonic	000				
TMK	023				
Tatung	026				
Teac	000	026			
Technics	004	028			
Teknika	004	005	000		
Thomas	000				
Toshiba	010	009			
Totevision	005	023			
Unitech	023				
Vector	010				
Vector Research	006				
Video Concepts	010				

Videosonic	023					
Wards	013	004	027	012	016	023
	000	008	015	019		
White WestingHouse	021	025				
XR-100	004	000	015			
Yamaha	006					
Zenith	007	000	021	003		
Ameira High	004 (TV use 008)					
Brocksonic	001					
Colt	015					
Cutis Mathes	004 (TV use 008)					
Daewoo	025					
Emerson	001					
Funai	000					
GE	004 (TV use 008)	013 (TV use 012)				
	027 (TV use 041)	023				
Hitachi	004 (TV use 008)	000				
HQ	000					
Lloyds	000					
MGA	023					
Megavox	016 (TV use 010)	004 (TV use 008)				
	000					
Magnin	023					
Memorex	005					
	028 (TV use 025)					
Mitsubishi	027 (TV use 041)					
Orion	001					

Panasonic	004 (TV use 008)
	028 (TV use 042)
Penney	004 (TV use 008)
	023
	028 (TV use 042)
Quasar	004 (TV use 008)
	028 (TV use 042)
RCA	013 (TV use 012)
	004 (TV use 008)
	027 (TV use 041)
Sansui	000
Sanyo	023
Sear	000
	005
Sharp	027 (TV use 041)
Sony	002 (TV use 000)
Symphonic	000
Zenith	000

DVD setup codes

Harman/Kardon	009		
JVC	008		
Kenwood	005		
Megavox	011		
Mitsubishi	016		
Onkyo	011		
Panasonic	013		
Philips	011	006	
Pioneer	003	014	026
Proscan	002		

RCA	002				
Samsung	017				
Sherwood	001	012	000	018	019
	020	021	022	023	025
Sony	004				
Technics	013				
Theta Digital	014				
Toshiba	011				
Yamaha	013	007			
Zenith	011	010			

Cable Set-top Box setup codes

ABC	002	003	009	030
	007	006	008	
Allegro	018	021		
Archer	018	026		
Bell&Howell	009			
Century	018	021		
Citizen	018			
Comtronics	014			
Contec	011			
Easten	001			
Emerson	026			
Everquest	010	014		
Focus	022			
Garrard	018			
Gemini	010			
General Instrument	033	276	006	034

GoldStar	017	040			
Goodmind	026				
Hamlin	012	020	004	013	
Hitachi	006				
Hytex	007				
Jasco	010	018	021		
Jerrold	002	007	033	032	009	010
	006	034			
Memolex	000				
Movie Time	015				
NSC	015				
Oak	011				
Optimus	031				
Panasonic	000	016	031		
Paragon	000				
Philips	018				
Pioneer	017	025			
Popular Mechanics	022				
Pulsar	000				
Quasar	000				
RCA	031				
Radio Shack	010	021	026	028	
Recoton	022				
Regal	012	020			
Regency	001				
Rembrandt	006				
Runco	000				
SL Marx	014				

Smasung	017	014		
Scientific Atlanta	003	023	030	027
Signal	010	014		
Signature	006			
Sprucer	031			
Starcom	002	010		
Stargate	010	014	026	
Starquest	010			
TV86	015			
Teleview	014			
Tocom	007	008		
Toshiba	000			
Tusa	010			
Unika	018			
United Artists	007			
Universal	153	019		
Viewstar	015			
Zenith	000	024		
Zentek	022			

Satellite Set-top Box setup codes

AlphaStar	008			
Chaparral	001			
Echostar	009			
Expreevu	009			
General Instrument	016	015	018	
HTS	009			
Hitachi	011			
Hughes Net.Sys	007			
JVC	009			
Jerrold	016	015		
Megavox	006	005		
Memorex	006			
Next Level	006			
Panasonic	017			
Philips	006	005		
Primestar	016	015		
RCA	003	000	002	012
Radio Shack	018			
Realistic	014			
Sony	004			
Star Choice	018			
Toshiba	010			
Uniden	006	005	014	
Zenith	013			

Aux-Tape/MiniDisc setup codes

Sherwood   000 (for tape deck)

            035 (for MD recorder)

Aux-Laserdisc setup codes

Denon	007	
Mitsubishi	007	
NAD	007	
Pioneer	007	
Sony	017	018

Aux-Tape setup codes

Aiwa	004	034	
Carver	004		
Harman/Kardon	016	004	
JVC	022	024	
Kenwood	008		
Megavox	004		
Marantz	004		
Onkyo	012	025	
Opimus	002	020	
Panasonic	038		
Pioneer	002	020	011
Sansui	004		
Sony	021	014	026
Technics	038		
Victor	024		

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Wards	002	
Yamaha	010	009

Aux-Amplifier setup codes

Awia	029	
Carver	023	
Curtis Mathes	027	
Denon	037	
Harman/Kardon	040	
Linn	023	
Megavox	023	
Marantz	023	
Panasonic	039	
Philips	023	040
Pioneer	003	027
Sony	019	033
Technics	039	
Wards	003	
Yamaha	028	

Aux-Home Automation setup codes

GE	043
Lutron	044
One For All	042
Radio Shack	043
Security System	042
Universal X10	042
X10	042

Aux-DBS setup codes

Awia	045	059	029
Fisher	005		
Harman/Kardon	046		
JBL	046		
JVC	047		
Jerrold	031		
RCA	006		
Scientific Artlanta	032		
Sony	045		
Starcom	031		

Aux-Accessory setup codes

Archer	013
GC Electronics	013
Jebsee	013
Rabbit	036
Radio Shack	013

CD setup codes

Awia	010	030			
Burmester	019				
California Audio Lab	002				
Carver	010	012	020		
DKK	001				
Denon	028	034			
Emerson	035				
Fisher	012	033			
Garrard	019	018			
Genexxa	004	035			
Harman/Kardon	010	011			
Hitachi	004				
JVC	007				
Kenwood	003	029	016	024	025
Krell	010				
LXI	035				
Linn	010				
MCS	002				

MTC	019				
Megavox	010	035			
Marantz	002	010	013		
Mission	010				
NSM	010				
Nikko	033				
Onkyo	008	026			
Opimus	001	004	012	035	029
	019	009	021	020	
Panasonic	002	031			
Parasound	019				
Philips	010	023			
Pioneer	004	035	021	017	
Proton	010				
QED	010				
Quasar	002				
RCA	012	035	006	036	
Realistic	012	019	013		
Rotel	010	019			
SAE	010				
Sansui	010	035			
Sanyo	012				
Scott	035				
Sears	035				
Sharp	029	013	037		
Sherwood	013	027	038	039	040	041
	000				
Sony	001	014	022		
Soundesign	009				
Tascam	019				

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Teac	019	018	033	013
Technics	002	031		
Victor	007			
Wards	010	006		
Yamaha	005	015		
Yorx	032			

Safety, Regulatory, and Legal Information

B

Important safety information

1 Read Instructions - All the safety and operating instructions should be read before the product is operated.

2 Retain instructions - The safety and operating instructions should be retained for future reference.

3 Heed Warnings - All warnings on the product and in the operating instructions should be adhered to.

4 Follow Instructions - All operating and use instructions should be followed.

5 Cleaning - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6 Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7 Water and Moisture - Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement, or near a swimming pool; and the like.

8 Accessories - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9 A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

10 Ventilation - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

11 Power Sources - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12 Grounding or Polarization - This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

Alternate Warnings - This product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. this is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13 Power-Cord Protection - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

14 Outdoor Antenna Grounding - If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.

15 Lightning - For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

16 Power Lines - An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

17 Overloading - Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

18 Object and Liquid Entry - Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

19 Servicing - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20 Damage Requiring Service - Unplug this product form the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged,
- If liquid has been spilled, or objects have fallen into the product,
- If the product has been exposed to rain or water,
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way, and
- When the product exhibits a distinct change in performance - this indicates a need for service.

21 Replacement Parts - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

22 Safety Check - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23 Wall or Ceiling Mounting - The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24 Heat - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Notes:

1 Item 12 is not required except for grounded or polarized product.

2 Item 14 and 16 are not required except for units provided with antenna terminals.

3 Item 14 complies with UL in U.S.A.

Regulatory compliance statements

United States of America

Federal Communications Commission (FCC)
Unintentional emitter per FCC Part 15

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment to an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation of this product is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution	Changes or modifications not expressly approved by Gateway could void the FCC compliance and negate your authority to operate the product.

Canada

Industry Canada (IC)
Unintentional emitter per ICES-003

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Laser safety statement

All Gateway systems equipped with CD and DVD drives comply with the appropriate safety standards, including IEC 825. The laser devices in these components are classified as "Class 1 Laser Products" under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing, contact an authorized service location.

Warning	Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD or DVD drive.

California Proposition 65 Warning

Warning	This product contains chemicals, including lead, known to the State of California to cause cancer and/or birth defects or reproductive harm.

Television antenna connectors protection

External television antenna grounding

If an outside antenna or cable system is to be connected to your receiver, make sure that the antenna or cable system is electrically grounded to provide some protection against voltage surges and static charges.

Article 810 of the National Electrical Code, ANSI/NFPSA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Lightning protection

For added protection of any Gateway product during a lightning storm or when it is left unattended or unused for long periods of time, unplug the product from the wall outlet and disconnect the antenna or cable system.

Power lines

Do not locate the antenna near overhead light or power circuits, or where it could fall into such power lines or circuits.

Warning	When installing or realigning an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits. Contact with them could be fatal.
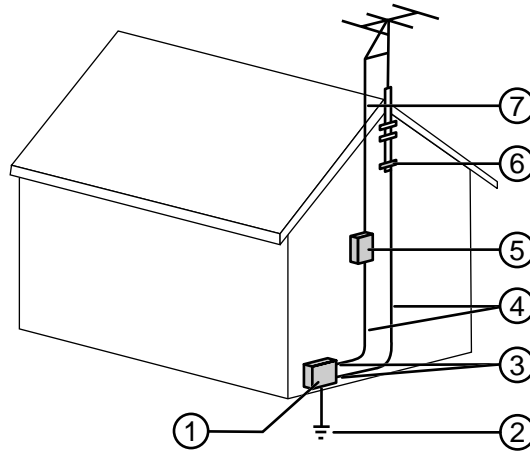
Antenna and satellite grounding

Reference	Grounding component
1	Electric service equipment
2	Power service grounding electrode system (NEC Art 250, Part H)
3	Ground clamps
4	Grounding conductors (NEC Section 810-21)
5	Antenna discharge unit (NEC Section 810-20)
6	Ground clamp
7	Antenna lead-in wire

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Index

112

114

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