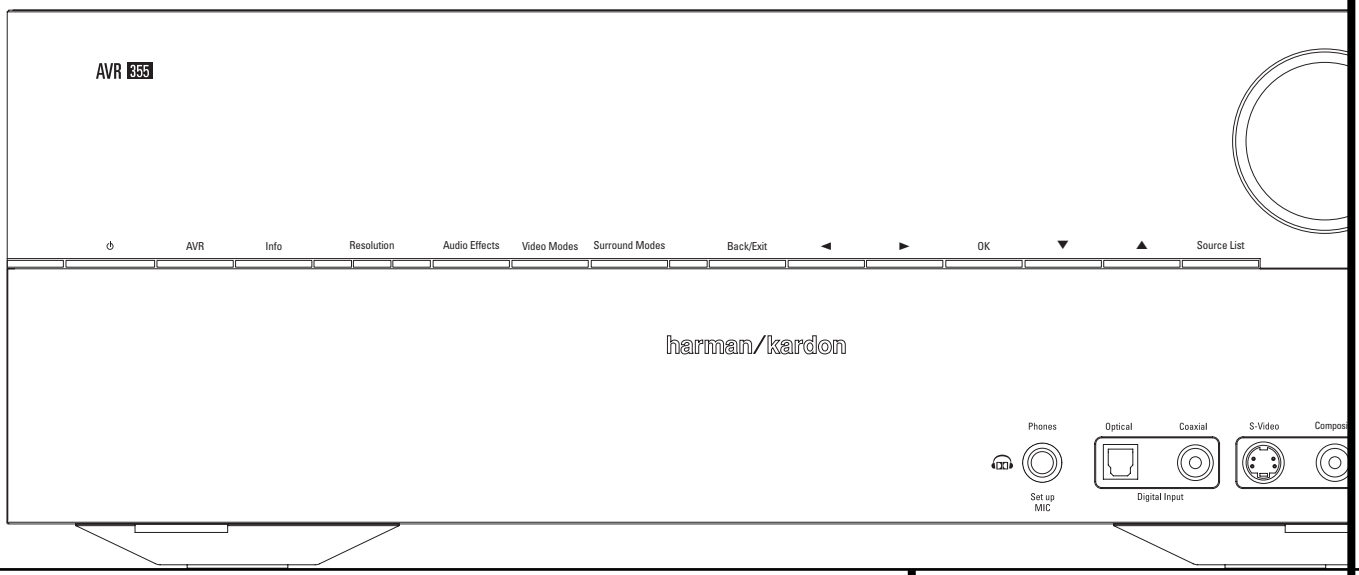
ENGLISH

AVR 255/AVR 355 Audio/Video Receiver

OWNER'S MANUAL



harman/kardon®
Designed to Entertain™

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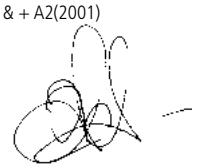
Declaration of Conformity

CE

We, Harman Consumer Group, Inc.
2, route de Tours
72500 Château-du-Loir,
FRANCE

declare in own responsibility, that the product described in this owner's manual is in compliance with technical standards:

EN55013(2001) & + A2(2006)
EN55020(2002) & + A2(2005)
EN60065:2002
EN61000-3-2(2000)+A2(2005)
EN61000-3-3 (1995)+A1(2001)+A2(2005)
EN61000-4-2(1995) & + A1(1998) & + A2(2001)
EN61000-4-3(2002) & + A1(2002)
EN61000-4-4(2004)



Jurjen Amsterdam
Harman Consumer Group, Inc.
03/08

Typographical Conventions
In order to help you use this manual with the remote control, front-panel controls and rear-panel connections, certain conventions have been used.

EXAMPLE – (bold type) indicates a specific remote control or front-panel button, or rear-panel connection jack

EXAMPLE – (OCR type) indicates a message that is visible on the front-panel information display

1 – (number in a square) indicates a specific front-panel control

❶ – (number in a circle) indicates a rear-panel connection

A – (letter in a square) indicates a button or indicator on the remote

Ⓐ – (letter in an oval) indicates a button on the Zone 2 remote

The appearance of the text or cursor for your receiver's on-screen menus may vary slightly from the illustrations in this manual. Whether the text appears in all uppercase or upper- and lowercase characters, performance and operation remain the same.

Introduction

Thank you for choosing Harman Kardon!
With the purchase of a Harman Kardon AVR 255/ AVR 355 you are about to begin many years of listening enjoyment. Designed to provide all the excitement and detail of movie soundtracks and every nuance of musical selections, the AVR 255/ AVR 355 are truly multichannel receivers for the new millennium. In addition to the traditional 5.1 digital decoding modes such as Dolby Digital and DTS, they offer the latest advancements in surround technology such as Dolby® True HD and DTS®-HD Master Audio™ and the latest 7.1 channel versions of Harman's own Logic 7 technology.

The AVR 255/AVR 355 have been engineered so that it is easy to take advantage of all the power of their digital technology. Full-color, high-definition, multi-language on-screen menus, fully color coded connection jacks and terminals make installation fast and simple. However, to obtain the maximum enjoyment from your new receiver, we urge you to read this manual. A few minutes spent learning the functions of the various controls will enable you to take advantage of all the power the AVR is able to deliver.

If you have any questions about this product, its installation or its operation, please contact your retailer or custom installer. They are your best local sources of information.

Description and Features
The AVR serves as the hub of your home entertainment system, providing a wide range of listening possibilities for almost any audio or video program source, whether it is the broadcast of a movie or sporting event in HDTV or a vintage mono or stereo recording. When playing digital audio sources from either the conventional optical and coaxial inputs, or through the HDMI 1.3a compliant connections, the AVR decodes Dolby True HD, Dolby Digital Plus, DTS-HD Master Audio and DTS-HD data streams. Two-channel stereo and matrix surround sources benefit from all current Dolby Pro Logic IIx modes and DTS Neo:6. The latest version of our proprietary Logic 7® process is on-board to create a wider, more enveloping sound field and more defined surround channel positioning, regardless of the type of source material.

Dolby Virtual Speaker is available to create enveloping sound fields from front left and right speakers, and the latest Dolby Headphone circuitry creates an amazing sense of openness with headphones.

The AVR takes the "video" part of its name seriously. Along with three HDMI inputs and three 100MHz analog component video inputs (two on the AVR 255), the AVR's video processing allows you to scale the output signal to 1080p loop-through to match the requirements of your specific video display. Thanks to award winning Faroudja® DCDi Cinema™ technology, your video sources never looked better. Tying audio and video together, the AVR provides A/V sync delay so that the lip sync errors – commonly seen when digital video processing is used in a source, program or video display – are eliminated.

An important addition to the AVR's impressive list of features is EzSet/EQ™, which automates the configuration process to make it quicker, easier and more precise. Using the special microphone supplied with the unit, EzSet/EQ takes the guesswork out of entering speaker "size" and crossover information, delay times for all channels and output levels. In addition to the configuration settings, EzSet/EQ also includes room equalization so that the signals sent to each speaker are tailored to provide accurate sonic quality with your specific combination of speaker type, room size and other factors that influence room acoustics. With EzSet/EQ, your system is custom-configured in a few minutes with accuracy that previously required expensive and hard-to-use test equipment.

In tandem with EzSet/EQ, the AVR includes a full set of manual configuration settings for those who wish to custom-trim their system even further. A Quadruple Crossover bass management system makes it possible to enter different crossover settings for each speaker group.

A Stereo-Direct mode bypasses the digital processor to preserve all of the subtleties of older analog, two-channel materials, while bass management, available in the surround and Stereo-Digital modes, improves your ability to tailor the sound to suit your room acoustics or taste.

For the ultimate in flexibility, the AVR's feature connections for four video devices, all with both composite and S-Video inputs. Two additional audio inputs are available, and a total of six digital inputs and two outputs make the AVR capable of handling all the latest digital audio sources. For compatibility with the latest HDTV video sources and progressive scan DVD players, the AVR also features wide-bandwidth, low-crosstalk component video switching.

Coax and optical digital outputs are available for direct connection to digital recorders. A video recording output and a color-coded eight-channel input make the AVR virtually future-proof, with everything needed to accommodate tomorrow's new formats right on board.

With one simple connection between the AVR 355 and the optional Harman Kardon The Bridge, you are able to listen to materials stored on your compatible Apple® iPod®**. Your AVR's system remote control has been preprogrammed with control codes that enable you to select tracks for playback and navigate many of your iPod's functions, even from across the room. The Bridge™ will even let you charge your iPod.

The AVR 355's flexibility and power extend beyond your main home theater or listening room. The AVR includes a sophisticated multizone control system that allows you to select one source for use in the main room and a different one (Audio only) in a second room. Complete control over volume is possible with a separate infrared control link. To make it easy to operate the AVR from a remote room, a separate "Zone II" remote is included.
Additional multiroom options include the option to assign two of the AVR's output channels to the multiroom system and the ability to link the AVR to innovative A-BUS® keypads for multiroom operation without the need for external amplifiers.

The AVR's powerful amplifier uses traditional Harman Kardon high-current design technologies to meet the wide dynamic range of any program selection.

Harman Kardon invented the high-fidelity receiver more then fifty years ago. With state-of-the-art circuitry and time-honored circuit designs, the AVR 255 and AVR 355 are the perfect combination of the latest in digital audio technology, a quiet yet powerful analog amplifier in an elegant, easy-to-use package.

**Compatible with all iPod models equipped with a dock connector, including third-generation "Click Wheel" models and newer. Not compatible with iPod shuffle models. Although iPod photo models are compatible, images stored on the iPod can only be viewed using the controls on the iPod, not with the AVR remote.

- **Dolby True HD, Dolby Digital Plus, Dolby Digital EX and Dolby Pro Logic* II and IIx Decoding, and the full suite of DTS® modes, including DTS-HD Master Audio, DTS-HD and DTS-ES® 6.1 Discrete & Matrix and Neo:6®**
- **Seven channels of high-current amplification with two channels assignable to either surround back or multiroom applications**
- **Harman Kardon's exclusive Logic 7® processing, along with a choice of Dolby Virtual Speaker processing for use when only two speakers are available**
- **Dolby Headphone to create spacious, open sound fields when using headphones**
- **Harman Kardon's advanced EzSet/EQ™ automatically configures speaker settings and sets room equalization for quick, easy and accurate system setup**
- **HDMI with audio/video processing, upscaling to 720p/1080p and repeater for increased cable length without signal degradation**
- **Three HDMI™ 1.3a and three (two on AVR 255) assignable high-bandwidth analog component inputs for compatibility with the latest high-definition video sources**
- **Front panel analog A/V inputs**
- **Front panel digital inputs for easy connection to portable digital devices and the latest video game consoles**
- **Connects to Harman Kardon's The Bridge (optional) for charging, playback and control of a compatible Apple® iPod® device (AVR 355 only)**
- **Input titling for all input sources (except tuner)**
- **Multiple digital inputs and outputs**
- **Full-color, high-definition, multi-language On-screen menu and display system**
- **A/V Sync delay adjustable for each input delivers perfect lip sync with digital programs or video displays**
- **6-Channel/8-Channel Direct Input for Use with Future Audio Formats**
- **Extensive bass management options, including four separate crossover groupings**
- **Extensive multiroom options, including a standard Zone II remote, assignable amplifier channels and A-BUS Ready® capability for listening to a separate source in a remote zone (AVR 355 only)**
- **Main Remote with Internal Codes**

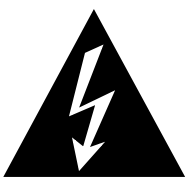
Important Safety Instructions

Please read the following precautions before use:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily operable.
18. Do not expose batteries to excessive heat such assunshine, fire or the like.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



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



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



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

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Safety Information

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

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

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.



Instructions for users on removal and disposal of used batteries. Specification of included battery types.

These symbols shown on the product, the packaging or in the manual or separate information sheet mean that the product itself, as well as the batteries included or built into the product, should never be thrown away with general household waste. Take them to applicable collection points, where proper treatment, recycling and recovery takes place, in accordance with national or local legislation, or European Directives 2002/96/EC and 2006/66/EC.

Correct handling of the product and batteries to be disposed helps save resources and prevents possible negative effects on the environment or human health.

The batteries included with your equipment may be Alkaline, Carbon Zinc/Manganese or Lithium (button cells) type. All types should be disposed of according to the above instructions.

To remove the batteries from your equipment or remote control, reverse the procedure described for inserting batteries in the Owners Manual.

For products with a built-in battery that lasts for the lifetime of the product, removal may not be possible for the user. In this case, recycling or recovery centers handle the dismantling of the product and the removal of the battery. If, for any reason, it becomes necessary to replace such a battery, this procedure must be performed by authorized service centers.

Installation Location

- To assure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product.
- Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. Under some circumstances a fan may be required.
- Do not place the unit directly on a carpeted surface.
- Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment.
- Avoid moist or humid locations.
- Do not obstruct the ventilation slots on the top of the unit, or place objects directly over them.
- Due to the weight of the AVR and the heat generated by the amplifiers, there is the remote possibility that the rubber padding on the bottom of the unit's feet may leave marks on certain wood or veneer materials. Use caution when placing the unit on soft woods or other materials that may be damaged by heat or heavy objects. Some surface finishes may be particularly sensitive to absorbing such marks due to a variety of factors beyond Harman Kardon's control, including the nature of the finish, cleaning materials used, and normal heat and vibration caused by the use of the product, or other factors. We recommend that caution be exercised in choosing an installation location for the component and in normal maintenance practices, as your warranty will not cover this type of damage to furniture.

Cleaning

When the unit gets dirty, wipe it with a clean, soft, dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water, then a fresh cloth with clean water.
Wipe dry immediately with a dry cloth. NEVER use benzene, aerosol cleaners, thinner, alcohol or any other volatile cleaning agent. Do not use abrasive cleaners, as they may damage the finish of metal parts. Avoid spraying insecticide near the unit.

Moving the Unit

Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet.

Unpacking

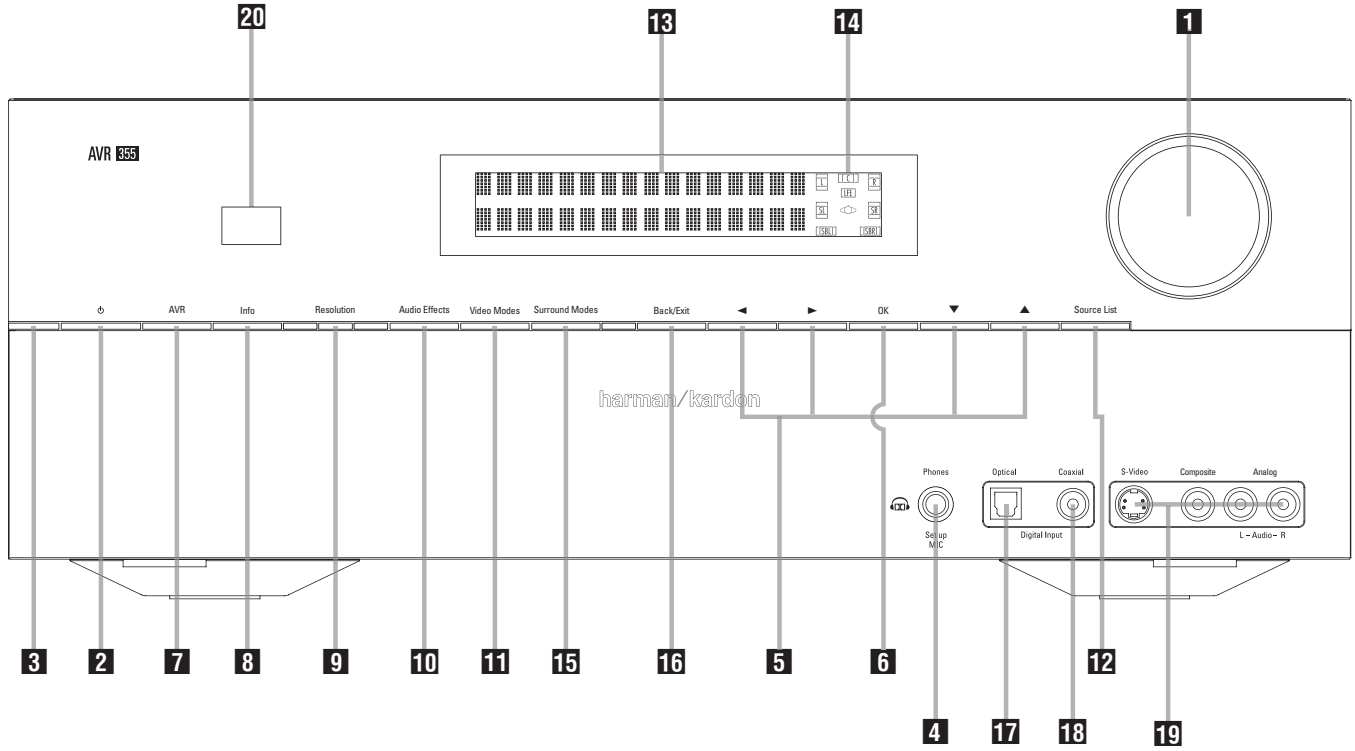
The carton and shipping materials used to protect your new receiver during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move, or should the unit ever need repair.

To minimize the size of the carton in storage, you may wish to flatten it. This is done by carefully slitting the tape seams on the bottom and collapsing the carton. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag.

If you do not wish to save the packaging materials, please note that the carton and other sections of the shipping protection are recyclable. Please respect the environment and discard those materials at a local recycling center.

It is important that you remove the protective plastic film from the front-panel lens. Leaving the film in place will affect the performance of your remote control.

Front Panel Controls



1 Volume Control
2 System Power Control
3 Power Indicator
4 Headphone Jack
5 Menu Navigation Buttons
6 OK Button
7 AVR Button
8 Info Button
9 Resolution Button
10 Audio Effects Button
11 Video Modes Button
12 Source List Button
13 Main Information Display
14 Speaker/Channel Input Indicator
15 Surround Mode Button
16 Back/Exit Button
17 Digital Optical Front Input
18 Digital Coax Front Input
19 Video Front Input Jacks
20 Remote Sensor Window

Front Panel Controls

1 Volume Control: Turn this knob clockwise to increase the volume, counterclockwise to decrease the volume. If the AVR is muted, adjusting volume control will automatically release the unit from the silenced condition.

2 System Power Control: When the **Main Power Switch** on the rear panel is "ON," press this button to turn on the AVR; press it again to turn the unit off (to Standby). Note that the **Power Indicator 3** will turn white when the unit is on.

3 Power Indicator: This LED will be illuminated in amber when the unit is in the Standby mode to signal that the unit is ready to be turned on. When the unit is in operation, the indicator will turn white.

4 Headphone Jack: This jack may be used to listen to the AVR's output through a pair of headphones. Be certain that the headphones have a standard 6,3 mm stereo phone plug. Note that the speakers will automatically be turned off when the headphones are connected.

When configuring your system using EzSet/EQ, the calibration microphone should be plugged into this jack using the supplied adaptor that converts the small mini-plug at the end of the microphone's cord to a 6,3 mm plug.

5 Navigation: These buttons are used to navigate the AVR's menus and to operate the tuner.

6 OK Button: Press this button to select the currently highlighted item.

7 AVR Settings Button: Press this button to access the AVR's main menu.

8 Info Settings Button: Press this button to directly access the AVR's Setup Source submenu, which contains the settings for the current source.

9 Resolution: Pressing this Button once and then using the Up/Down **Navigation** Buttons **5** changes the AVR's video output resolution to these settings: 576i, 576p, 720p, 1080i or 1080p. The AVR is set to default to 576i when first switched on, or if you reset it later. This resolution has been chosen to ensure that the On Screen Display information is visible on your TV even with analog S-Video or Composite (CVBS) signals. Having selected the best resolution for your system, confirm with the **OK** Button **6**. The Front Panel Display now shows "Res Change, Cancel". If you press **OK** now, or do nothing for 20 seconds, the AVR returns to normal play mode. To confirm the new resolution, press the ▼ Button **5**, which changes the Display from "Cancel" to "Accept", then press the **OK** Button **6**. The new resolution is now in use.

10 Audio Effects: Press this button to directly access the Audio Effects submenu, which allows adjustment of the tone and other controls. See the Initial Setup section for more information.

11 Video Modes: Press this button for direct access to the Video Modes submenu, which contains settings that may be used to improve the picture if necessary after you have adjusted the picture settings using the video display or TV.

12 Source List Button: Press this Button to open the on-screen Source Selection Menu with the slide-in Source List already open. If you are not using your TV for on-screen reference, use the Front Panel Information Display which shows the information you need. Scroll up and down with the ▲▼ Buttons **5**, select the desired Input by pressing the **OK** Button **6** and exit the Source Selection function by pressing the **Source List** Button **12** again.

13 Main Information Display: This display delivers messages and status indications to help you operate the receiver.

14 Speaker/Channel Input Indicators: These indicators are multipurpose, indicating either the speaker type selected for each channel or the incoming data-signal configuration. The left, center, right, right surround and left surround speaker indicators are composed of three boxes, while the subwoofer is a single box. The center box lights when a "Small" speaker is selected, and the two outer boxes light when "Large" speakers are selected. When none of the boxes are lit for the center, surround or subwoofer channels, no speaker has been selected for that position. (See page 22 for more information on configuring speakers.) The letters inside each of the center boxes display active input channels. For standard analog inputs, only the L and R will light, indicating a stereo input. When a digital source is playing, the indicators will light to display the channels being received at the digital input. When the letters flash, the digital input has been interrupted. (See page 33 for more information on the Channel Indicators).

NOTE: When you have reassigned the surround back speakers to the remote zone using the MULTI ROOM SETUP menu, the boxes that indicate the presence of the surround back speakers will automatically disappear, reflecting the fact that the main listening area is now configured for 5.1-channel operation. (See page 35 for more information on reassigning the surround back speakers for multiroom use.)

15 Surround Modes: Press this button to select a surround sound (e.g.,multichannel) mode. The Surround Modes menu will appear on screen, and the menu line will appear on the lower line of the front-panel display.

Use the front-panel or remote ▲/▼ Buttons to highlight a different menu line: Auto Select, Virtual Surround, Stereo, Movie, Music or Video Game. Each line represents a type of audio signal, and is set to the surround mode the AVR will automatically select when it detects the audio signal.

You may manually select a different mode for each type of audio. Press the **OK** Button when the menu line is highlighted, and the available surround mode options for the current signal will appear. Use the ▲/▼ Buttons to select the desired mode, and press the **OK** Button to engage it. Press the Back/Exit Button to exit the Surround Modes menu and display the next higher menu in the hierarchy.

See the Advanced Functions section for more information on surround modes.

16 Back/Exit: Press this button to return to the previous menu. When the main AVR menu is displayed, press this button to exit the menu system.

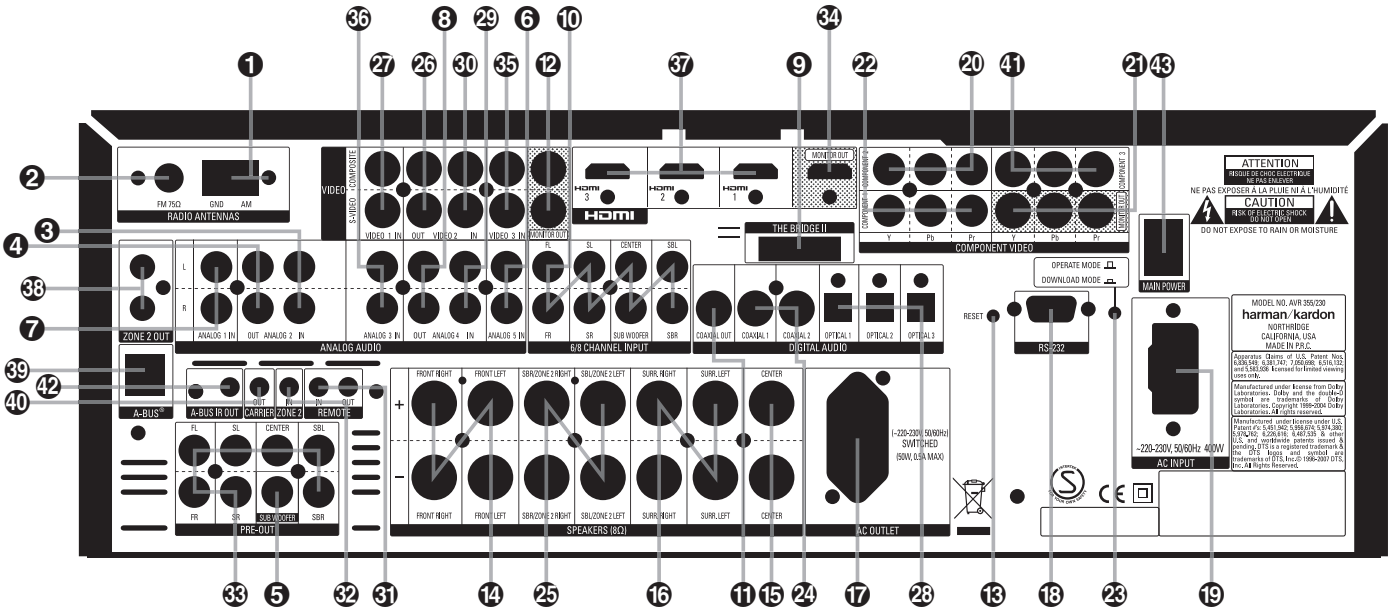
17 Digital Optical Front Input: Connect the optical digital audio output of an audio or video product to this jack.

18 Digital Coax Front Input: This jack is normally used for connection to the output of portable digital audio devices, video game consoles or other products that have a coax digital jack.

19 Video Front Input Jacks: These audio/video jacks may be used for temporary connection to video games or portable audio/video products such as camcorders and portable audio players.

20 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.

Rear Panel Connections



❶ AM Antenna
❷ FM Antenna
❸ Analog 2 Audio IN
❹ Analog 2 Audio OUT
❺ Subwoofer Output
❻ Analog 5 Audio IN
❼ Analog 1 Audio IN
❽ Analog 4 Audio OUT
❾ Bridge II Connector (Stereo Jack IN AVR 255)
❿ 8-Channel Direct Inputs
⓫ Digital Audio Outputs
⓬ Video Monitor Outputs
⓭ Reset Button
⓮ Front Speaker Outputs
⓯ Center Speaker Outputs
⓰ Surround Speaker Outputs
⓱ Switched AC Accessory Outlet
⓲ RS-232 Serial Port
⓳ AC Power Cord
⓴ Video 2 Component Video Inputs
㉑ Component Video Outputs
㉒ Video 1 Component Video Inputs
㉓ Download Mode Button
㉔ Coaxial Digital Inputs
㉕ Surround Back/Multiroom Speaker Outputs
㉖ Video 2 Video Outputs
㉗ Video 1 Video Inputs
㉘ Optical Digital Inputs
㉙ Analog 4 Audio IN
㉚ Video 2 Video Inputs
㉛ Remote IR Output and Input
㉜ Zone 2 IN
㉝ Preamp Outputs
㉞ HDMI Output
㉟ Video 3 Video Inputs
㊱ Analog Audio 3 IN
㊲ HDMI Inputs
㊳ Zone 2 OUT (AVR 355 only)
㊴ A-BUS Connector (AVR 355 only)
㊵ Remote IR Carrier Out (AVR 355 only)
㊶ Video 3 Component Video Inputs (AVR 355 only)
㊷ A-BUS IR Out (AVR 355 only)
㊸ Main Power Switch

NOTE: To assist in making the correct connections for multichannel input/output and speaker connections, all connection jacks and terminals have been color coded in conformance with the latest CEA standards as follows:

Front Left:	White
Front Right:	Red
Center:	Green
Surround Left:	Blue
Surround Right:	Gray
Surround Back Left:	Brown
Surround Back Right:	Tan
Subwoofer (LFE):	Purple
Digital Audio:	Orange
Composite Video:	Yellow
Component Video "Y":	Green
Component Video "Pr":	Red
Component Video "Pb":	Blue

❶ **AM Antenna:** Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the **AM** and **GND** terminals in accordance with the instructions supplied with the antenna.

❷ **FM Antenna:** Connect the supplied indoor or an optional external FM antenna to this terminal.

❸ **Analog 2 IN**: Connect these jacks to the PLAY/OUT audio jacks on any audio or video source.

❹ **Analog 2 OUT:** Connect these jacks to the REC/IN audio jacks on any audio or video source.

❺ **Subwoofer Output:** Connect this jack to the line-level input of a powered subwoofer. If an external subwoofer amplifier is used, connect this jack to the subwoofer amplifier input.

❻ **Analog 5 IN**: Connect these jacks to the PLAY/OUT audio jacks on any audio or video source.

❼ **Analog 1 IN**: Connect these jacks to the PLAY/OUT audio jacks on any audio or video source.

❽ **Analog 4 OUT**: Connect these jacks to the REC/IN audio jacks on any audio or video source.

❾ **The Bridge Digital Media Player (DMP) Connector (AVR 355 only):** With the AVR turned off, connect the optional Harman Kardon The Bridge to this proprietary connector, and dock your compatible Apple iPod. When the Digital Media Player source is selected, you may view your iPod's control and navigation messages on your video display (if one is connected to one of the **Video Monitor Outputs** ⓬), and in the **Upper** and **Lower Display Lines** 23. You may navigate the iPod and select tracks for playback using the ▲/▼/◀/▶ **Buttons** F, the **OK** button X and **Transport Controls** E on your AVR remote. See page 34 for more information.

On the AVR 255, this input is an extra Audio Input named Stereo Jack IN, where you can connect any device with a stereo mini-jack such as an MP3-player or portable CD player from its headphone output jack or line out jack.

⓾ **8-Channel Direct Inputs:** These jacks are used for connection to source devices such as DVD-Audio, Blu-ray, HD-DVD or SACD players with discrete analog outputs. Depending on the source device in use, all eight jacks may be used, though in many cases only connections to the front left/right, center, surround left/right and LFE (subwoofer input) jacks will be used for standard 5.1 audio signals.

⓫ **Digital Audio Output:** Connect this jack to the matching digital input connector on a digital recorder such as a CD-R or MiniDisc recorder.

⓬ **Video Monitor Outputs:** Connect these jacks to the composite and/or S-Video input of a TV monitor or video projector to view the on-screen menus and the output of any standard Video or S-Video source selected by the receiver's video switcher.

⓭ **RS-232 Reset:** This switch is only used during a software upgrade. A standard processor reset is performed by pressing and holding the front-panel **OK** Button while the receiver is in Standby.

⓮ **Front Speaker Outputs:** Connect these outputs to the matching + or – terminals on your left and right speakers. In conformance with the new CEA color code specification, the White terminal is the positive, or "+" terminal that should be connected to the red (+) terminal on Front Left speaker with the older color coding, while the Red terminal is the positive, or "+" terminal that should be connected to the red (+) terminal on Front Right speaker. Connect the black (–) terminals on the AVR to the black (–) terminals on the speakers. See page 16 for more information on speaker polarity.

⓯ **Center Speaker Outputs:** Connect these outputs to the matching + and – terminals on your center channel speaker. In conformance with the new CEA color code specification, the Green Terminal is the positive, or "+" terminal that should be connected to the red (+) terminal on speakers with the older color coding. Connect the black (–) terminal on the AVR to the black negative (–) terminal on your speaker. (See page 16 for more information on speaker polarity.)

⓰ **Surround Speaker Outputs:** Connect these outputs to the matching + and – terminals on your surround channel speakers. In conformance with the new CEA color code specification, the Blue terminal is the positive, or "+" terminal that should be connected to the red (+) terminal on the Surround Left speaker with older color coding, while the Gray terminal should be connected to the red (+) terminal on the Surround Right speaker with the older color coding. Connect the black (–) terminal on the AVR to the matching black negative (–) terminals for each surround speaker. (See page 16 for more information on speaker polarity.)

⓱ **Switched AC Accessory Outlet:** This outlet may be used to power any device that you wish to have turn on when the AVR is turned on with the **System Power Control** switch 2.

⓲ **RS-232 Serial Port:** This specialized connector may be used with your personal computer in case Harman Kardon offers a software upgrade for the receiver at some time in the future. Leave the Mode switch ㉓ popped out in the Operate position, unless the AVR is being upgraded. The Reset switch ⓭ is used only during the upgrade process.

⓳ **AC Power Cord:** Connect the AC plug to an unswitched AC wall output.
AVR 355 has a detachable Power Cord. AVR 255 has a fixed Power Cord.

⓴ **Video 2 Component Video Inputs:** These inputs may be used with any source device equipped with analog Y/Pr/Pb or RGB component video outputs. Do not use these inputs if HDMI connection is possible, use the HDMI inputs instead.

㉑ **Monitor Component Video Outputs:** Connect these outputs to the component video inputs of a video projector or monitor. When a source connected to one of the three **Component Video Inputs** ⓴㉒㉑ is selected the signal will be sent to these jacks.

㉒ **Video 1 Component Video Inputs:** These inputs may be used with any source device equipped with analog Y/Pr/Pb or RGB component video outputs Do not use these inputs if HDMI connection is possible, use the HDMI inputs instead.

Note: All component inputs/outputs can be used for RGB signals too, in the same way as described for the Y/Pr/Pb signals, then connected to the jacks with the corresponding color.
RGB connection is not possible if the source outputs a separate sync signal.

㉓ **Update Mode Button:** Leave the Mode switch popped out in the Operate position, unless the AVR is being upgraded. The Reset switch ⓭ is used only during the upgrade process.

㉔ **Coaxial Digital Inputs:** Connect the coax digital output from a DVD player, HDTV receiver, the output of a compatible computer sound card playing MP3 files or streams, LD player, MD player or CD player to these jacks. The signal may be either a Dolby Digital signal, DTS signal, a 2 channel MPEG 1 signal, or a standard PCM digital source. Do not connect the RF digital output of an LD player to these jacks.

㉕ **Surround Back/Multiroom Speaker Outputs:** These speaker terminals are normally used to power the surround back left/surround back right speakers in a 7.1 channel system. However, they may also be used to power the speakers in a second zone, which will receive the output selected for a multiroom system.
To change the output fed to these terminals from the default of the Surround Back speakers to the Multiroom Output, you must change a setting in the MULTIROOM MENU of the OSD system. See page 35 for more information on configuring this speaker output. In normal surround system use, the brown and black terminals are the surround back left channel positive (+) and negative (–) connections and the tan and black terminals are the surround back right positive (+) and negative (–) terminals.
For multiroom use, connect the brown and black SBL terminals to the red and black connections on the left remote zone speaker and connect the tan and black SBR terminals to the red and black terminals on the right remote zone speaker.

㉖ **Video 1 Video Outputs:** Connect these jacks to the **RECORD/INPUT** composite or S-Video jack on a VCR.

㉗ **Video 1 Video Inputs:** Connect these jacks to the **PLAY/OUT** composite or S-Video jacks on a TV or other video source.

㉘ **Optical Digital Inputs:** Connect the optical digital output from a DVD player, HDTV receiver, the output of a compatible computer sound card playing MP3 files or streams, LD player, MD player or CD player to these jacks. The signal may be either a Dolby Digital signal, a DTS signal, a 2 channel MPEG 1 signal, or a standard PCM digital source.

㉙ **Analog 4 Audio Inputs:** Connect these jacks to the **PLAY/OUT** audio jacks on a TV or other audio or video source.

㉚ **Video 2 Video Inputs:** Connect these jacks to the **PLAY/OUT** composite or S-Video jacks on a second VCR or other video source.

㉛ **Remote Input and Output:** If the AVR's front-panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to the Remote IN jack.
The Output connection permits the IR sensor in the receiver to serve other remote controlled devices. Connect this jack to the "IR IN" jack on Harman Kardon or other compatible equipment.

㉜ **Zone 2 IR Input:** Connect the output of an IR sensor in a remote room to this jack to operate the AVR's multiroom control system.

㉝ **Preamp Outputs:** Connect these jacks to an optional, external power amplifier for applications where higher power is desired.

㉞ **HDMI Output:** Connect this jack to the HDMI input on a compatible HDMI-equipped video display.

㉟ **Video 3 Video Inputs:** Connect these jacks to the **PLAY/OUT** composite or S-Video jacks on any video source.

㊱ **Analog 3 Audio Inputs:** Connect these jacks to the **PLAY/OUT** audio jacks on any audio or video source.

㊲ **HDMI Inputs:** Connect the HDMI output of video sources such as a DVD player, set-top box or HDTV tuner to either of these jacks.

㊳ **Zone 2 Outputs (AVR 355 only):** Connect these jacks to an optional audio power amplifier to listen to the source selected by the multiroom system in a remote room.

㊴ **A-BUS Connector:** Connect this jack to an optional A-BUS-certified remote room keypad or amplifier to extend the multiroom capabilities of your AVR. See page 18 for more information on A-BUS.

㊵ **Remote IR Carrier Output (AVR 355 only):** The output of this jack is the full signal received at the **Remote Sensor Window** 20 or input through the **Remote IR Input** ㉛ including the carrier frequency that is removed from signals at the **Remote IR Output** ㉛. Use this output to extend IR remote signals to the input of compatible products by direct connection or through the use of optional, external IR "blasters". If you are in doubt as to which of the two IR Output jacks to use, we recommend that you consult with your dealer or installer, or check with the manufacturer of the external equipment you wish to control.

㊶ **Video 3 Component Video Inputs (AVR 355 only):** These inputs may be used with any source device equipped with analog Y/Pr/Pb or RGB component video outputs. Do not use these inputs if HDMI connection is possible, use the HDMI inputs instead.

㊷ **A-BUS IR Out (AVR 355 only):** This output sends out the remote signal received by an A-Bus unit. This makes it possible to connect other Harman Kardon products to the AVR via their "IR IN" jacks, controlling them from another room with an A-Bus unit.

㊸ **Main Power Switch:** Press this button ON to apply power to the AVR. When the switch is ON, the unit is placed in a Standby mode, as indicated by the amber LED 3. This button MUST be ON to operate the unit. To turn the unit off completely and prevent the use of the remote control, this switch should be pressed OFF.

NOTE: This switch is normally left in the "ON" position.

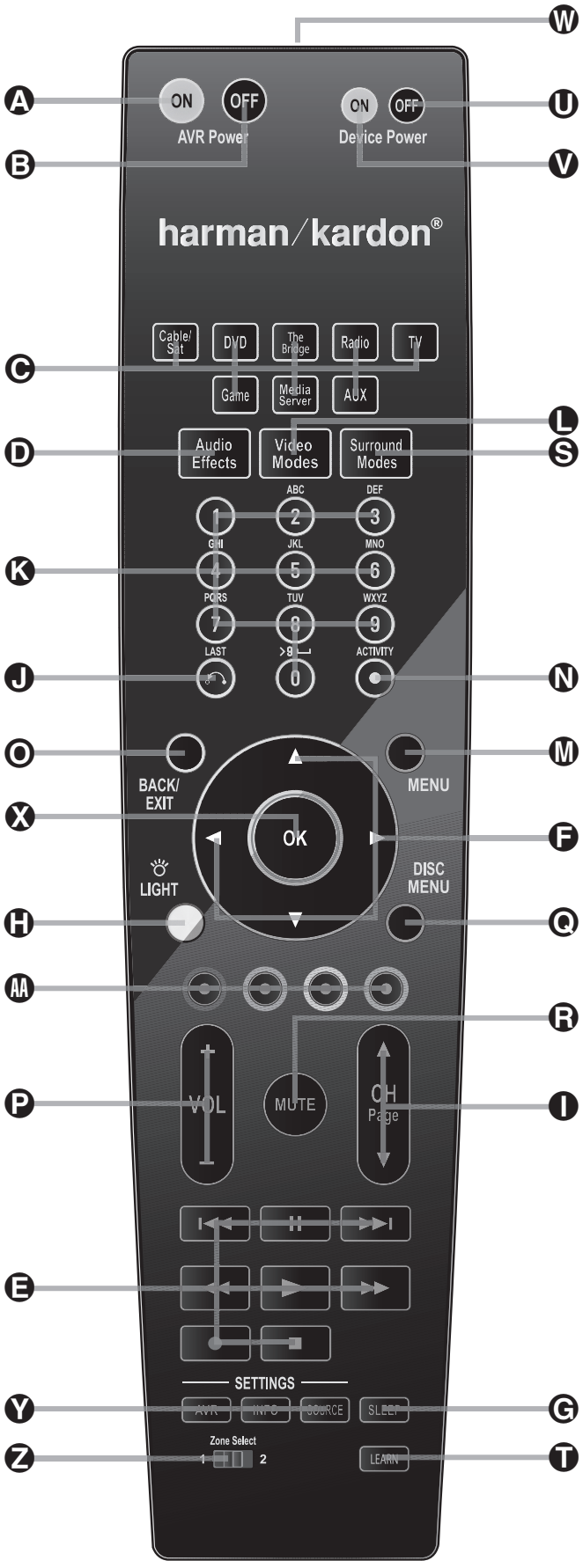
With the AVR's powerful processor, you may connect up to three HDMI-equipped source devices to the HDMI inputs using a single-cable connection, while benefiting from superior digital audio and video performance. However, if your video display is not HDMI-compatible, you will need to connect the source device to one of the other source inputs, selecting a coaxial or optical digital audio input and analog video input. See the Connections and Installation sections for more information.

If your video display has an HDMI input, but some of your sources have only analog video outputs, you may still rely on just the HDMI video connection to your display; the AVR will automatically transcode analog video signals to the HDMI format.

NOTE ON VIDEO CONNECTIONS: When connecting a video source product such as a VCR, DVD player, satellite receiver, cable set-top box, personal video recorder or video game to the AVR 255/AVR 355, you may use either a composite or S-video connection, but not both.

Main Remote Control Functions

- Ⓐ AVR Power On
- Ⓑ AVR Power Off
- Ⓒ Source Selectors (The Bridge only on AVR 355)
- Ⓓ Audio Effects Button
- Ⓔ Transport Controls
- Ⓕ Menu Navigation ▼▲◀ ▶
- Ⓖ Sleep Button
- Ⓗ Background Light Button (AVR 355 only)
- Ⓘ Main Tuning Buttons
- Ⓙ Last Button
- Ⓚ Numeric Keys
- Ⓛ Video Mode Button
- Ⓜ Menu Button
- Ⓝ Activity Button
- Ⓞ Back/Exit Button
- Ⓟ Master Volume
- Ⓠ Disc Menu Button
- Ⓡ Mute Button
- Ⓢ Surround Mode Button
- Ⓣ Learn Button (AVR 355 only)
- Ⓤ Device Power OFF Button
- Ⓥ Device Power ON Button
- Ⓦ Transmitter Window
- Ⓧ OK Button
- Ⓨ Settings Button
- Ⓩ Zone Select Button
- ⒶⒶ Red/Green/Yellow/Blue Color Buttons



NOTE: The function names shown here are each button's feature when used with the AVR. Most buttons have additional functions when used with other devices. See page 46-50 for a list of these functions.

Main Remote Control Functions

The remote is capable of operating the AVR 355/AVR 255 and most Harman Kardon CD changers or players, CD Recorders and Tape decks, using the control codes that are part of the remote.

A AVR Power On: When the AVR 355/AVR 255 is in the Standby mode, as indicated by the **Power Indicator 3** glowing amber, press this button to turn the unit on.

B AVR Power Off: When the AVR 355/AVR 255 is turned on, press this button to place it in the Standby mode. Note that in this condition, the unit is still connected to AC Power.

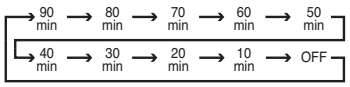
C Source Selectors: Press these buttons to select an input source for the AVR 355/AVR 255.

D Audio Effects Button: Press this button to go directly to the Audio Effects Menu.

E Transport Controls: These buttons are used to control Play, Play Forward, Play Reverse, Stop, Pause and Record functions on compatible Harman Kardon compact disc players/changers and cassette tape decks.

F Menu Navigation Buttons: Use these buttons to move Up, Down, Left or Right when using the Menu system of the AVR 355/AVR 255.

G Sleep Button: Press this button to place the unit in the Sleep mode. Each press of the button selects the amount of time that will remain before the unit will automatically go into the Standby mode, as shown in the **Main Information Display 13**, in the following order:



Holding the button pressed for some seconds will directly turn off the Sleep time selection.

H Light Button (AVR 355 only): Press this button to activate the remote control's background light.

I Channel/Page Button: When the tuner has been selected, this control selects a preset radio station. Press these buttons while operating a cable, satellite or HDTV set-top box or a television to change channels. The Page control may be available with some DVD players when playing a DVD Audio disc containing pages of images associated with a track.

J Last Button: When the tuner is in use, pressing this button returns to the last station tuned. When controlling a cable, satellite or HDTV set-top box or a TV, press this button to return to the previous television channel.

K Numeric Keys: These buttons serve as a ten-button numeric keypad to enter tuner preset positions or track numbers with CD players/changers or to tune stations directly.

L Video Modes Button: Press this button to go directly to the Video Modes Menu.

M Menu Button: When using a H/K DVD player with the receiver, you can activate the DVD Menu with this button.

N Activity Button: This button may be programmed to transmit a series of commands with a single press, which is useful for powering on all devices and selecting the correct settings on each device, or for selecting multi-digit channels with a single press. See the section on Programming the Remote for more information on Activities.

Press this button to enter the Activity programming function, or before pressing one of the Buttons that you have programmed with an Activity sequence, to begin transmitting the entire sequence.

O Back/Exit Button: Press this button to go back to the previous Menu or to exit a Menu.

P Master Volume: Press these buttons to raise or lower the AVR 355/AVR 255's volume.

Q Disc Menu: Press this button to open the menu of a DVD disc that you are watching.

R Mute Button: Press this button to momentarily silence the AVR 355/AVR 255.

S Surround Modes Button: Press this button to enter the Surround Modes selection Menu.

T Learn Button (AVR 355 only): Press and hold for 3 seconds to enter the Learn procedure. Please refer to the section concerning operation of the remote control.

U Device Power Off: Turns Off the power of other devices that you have selected to control with the Source Selector Buttons **C**.

V Device Power On: Turns On the power of other devices that you have selected to control with the Source Selector Buttons **C**.

W Transmitter Window: Point this area of the remote toward the receiver when using the remote.

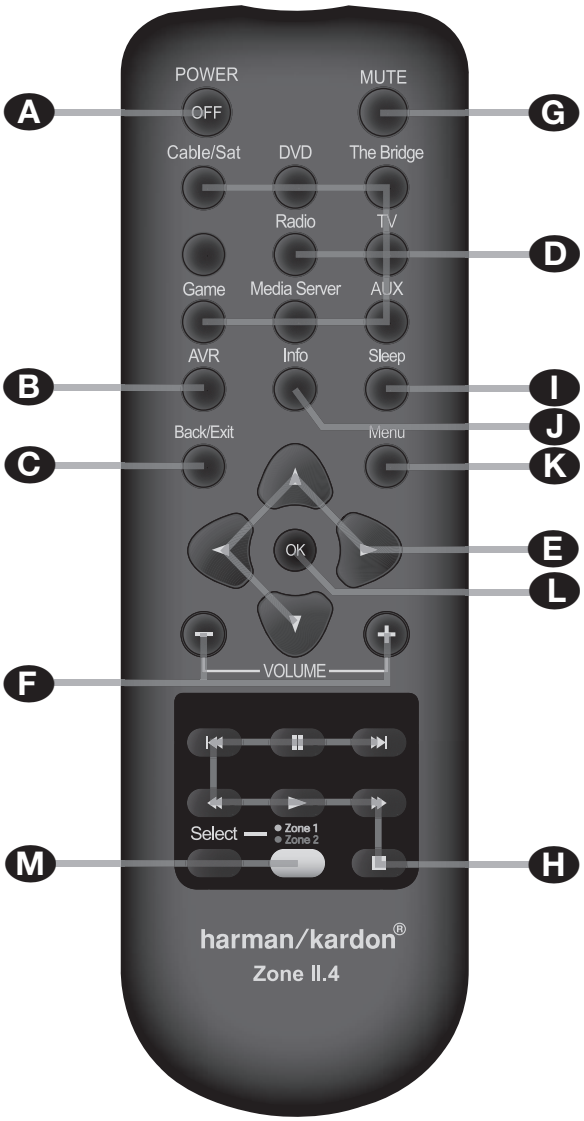
X OK Button: This button confirms settings and orders in the menus.

Y Settings Buttons: Open the AVR, INFO or SOURCE settings with one press of one of these buttons.

Z Zone Select: This button slides sideways to switch the remote control between controlling Zone 1 or Zone 2 of the AVR.

AA Color Buttons: These four buttons are used as color buttons when controlling a TV set. They have various functions when controlling other devices. Please refer to the remote control Code Tables page 46-50.

Zone 2 Remote Control Functions (Zone 2 Remote Control only with AVR 355)



- A Power Off
- B AVR Settings
- C Back/Exit Button
- D Source Selectors
- E Menu Navigation Buttons
- F Volume Up/Down
- G Mute
- H Transport Controls
- I Sleep Button
- J Settings Info Button
- K Menu Button
- L OK Button
- M Zone Select Buttons

NOTE: The Zone II.4 remote may be used in either the same room where the AVR is located, or it may be used in a separate room with an optional infrared sensor that is connected to the AVR's **Zone 2 IN** input jack ㉜. When it is used in the same room as the AVR, it will control the functions of the AVR or any compatible Harman Kardon products in that room. When it is used in a separate room via a sensor connected to the **Zone 2 IN** Jack ㉜, the buttons for power, input source, volume and mute will control the source and volume for the second zone, as connected to the **Zone 2 Out** Jacks ㊳. (See page 35 for complete information on using the Multiroom system.)

The Zone II remote may be used in either the same room where the AVR is located, or it may be used in a separate room with an optional infrared sensor that is connected to the AVR's **Zone 2** input jack ㉜ or an A-BUS device.

A Power Off: When used in the room where the AVR is located, press this button to place the unit in Standby. When it is used in a remote room with a sensor that is connected to the **Zone 2** jack ㉜, this button turns the Multi-Room system off.

B AVR Settings: Open the AVR settings info screen with this Button.

C Back/Exit Button: Press this button to go back to the previous Menu or to exit a Menu.

D Source Selectors: Press these buttons to select an input source for the AVR 355/AVR 255.

E Menu Navigation Buttons: Use these buttons to move Up, Down, Left or Right when using the Menu system of the AVR 355/AVR 255.

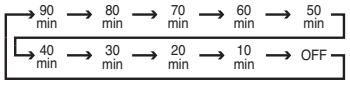
F Volume Up/Down: When used in the room where the AVR is located, press this button to raise or lower the volume in that room. When it is used in a remote room with a sensor that is connected to the **Zone 2** Jack ㉜, this button will raise or lower the volume in the remote room.

G Mute: When used in the room where the AVR is located, press this button to temporarily silence the unit. When it is used in a remote room with a sensor that is connected to the **Zone 2** Jack ㉜, this button will temporarily silence the feed to the remote room only. Press the button again to return to the previous volume level.

Important Note: No matter in which room the Zone II remote is used, as with the main remote it is important to remember to press the **Source Selector** button **D** that corresponds to the unit you wish to operate befor you change the device to be controlled.

H Transport Control Buttons: These buttons do not have any functions for the AVR, but they are programmed for the forward/reverse play operation of a wide variety of Harman Kardon CD or DVD players, and audio or video- cassette recorders.

I Sleep Button: Press this button to place the unit in the Sleep mode. Each press of the button selects the amount of time that will remain before the unit will automatically go into the Standby mode, as shown in the **Main Information Display 13**, in the following order:



Holding the button pressed for some seconds will directly turn off the Sleep time selection.

J Settings Info Button: Open the Settings Info Menu for any Source with this Button.

K Menu Button: When using a H/K DVD player with the receiver, you can activate the DVD Menu with this button.

L OK Button: This button confirms settings and orders in the menus.

M Zone Select Buttons: Press the Select Button to switch the Zone 2 Remote Control between Zone 1 function (The white Button lights up green) or Zone 2 function (The white Button light up red).

After unpacking the unit, and placing it on a solid surface capable of supporting its weight, you will need to make the connections to your audio and video equipment.

Audio Equipment Connections

There are two formats for audio connections: digital and analog. Digital audio signals are of higher quality, and are required for listening to sources encoded with digital surround modes, such as Dolby Digital and DTS. There are three types of digital audio connections: HDMI, coaxial and optical. HD-DVD(R) or Blu-Ray(R) players with Dolby Digital Plus, Dolby True HD, DTS-HD Master Audio and DTS-HD require an HDMI connection for the transfer of digital audio. Any one type of digital audio connection may be used for other source devices, but never more than one for the same source. However, it's okay to make both analog and digital audio connections at the same time to the same source.

Since the AVR is capable of processing the audio and video portions of an HDMI signal, if your video display device has an HDMI input, you may make a single HDMI connection from your source device (such as a DVD player) to the AVR. In that case no separate digital audio connection is required.

We recommend that you use high-quality interconnect cables when making connections to source equipment and recorders to preserve the integrity of the signals.

When making connections to audio source equipment or speakers it is always a good practice to unplug the unit from the AC wall outlet. This prevents any possibility of accidentally sending audio or transient signals to the speakers that may damage them.

HDMI Connections

HDMI™ is the abbreviation for High-Definition Multimedia Interface, which is quickly becoming the standard connection point between advanced video/audio source products and displays, particularly for high-definition video signals. HDMI is a digital connection, eliminating the need to convert signals back and forth from digital to analog to deliver a higher quality signal when used with digital sources. The signals carried on HDMI may, but do not always, include audio, offering the possibility of a complete one-wire connection from a source to the AVR. However, it is important to note that there are a number of different versions of the HDMI standard in use. Before connecting any HDMI products to your AVR, it is helpful to find out in advance their level of HDMI connectivity.

Some source or display components in your system may use DVI (Digital Video Interface) for digital video connections. DVI carries the same digital video signals as HDMI but uses a larger connector and does not transport audio or control signals. In most cases, you may mix and match DVI and HDMI digital video connections by using optional connector adapters. Note, however, that some DVI-equipped video displays are not compatible with the HDCP copy protection coding that is increasingly carried with signals connected via HDMI. If you have an HDMI source and a DVI-equipped display, you may occasionally be unable to view a program if the display does not include HDCP. This is not the fault of the AVR or your source; it simply indicates that the video display is not compatible.

HDMI Input Connections

The different "Version" levels of HDMI define which type of audio signals it is compatible with. Based on the lowest level of HDMI among your sources, the connections to the AVR should be made as follows:

- **HDMI 1.0** sources carry digital video and multichannel or 2-channel PCM audio signals only. Connect the HDMI output of a 1.0 source to either of the **HDMI Inputs** 37 on the AVR. If the product is a DVD-Audio player or other source that has multichannel analog audio outputs, connect them to the **8-Channel Direct Inputs** 10. With an HDMI 1.0 source, particularly a DVD player, make certain that the menus in the source device are set to "Bitstream Out" or "Original" so that 5.1 digital audio is available. If you find that 5.1 Dolby Digital or DTS audio is not available on the HDMI connection, it will be necessary to make an additional connection between the source and the AVR 255/AVR 355 to either the **Coaxial** 24 20 or **Optical** 23 18 **Digital Inputs**.
- **HDMI 1.1** sources carry the multichannel digital audio output from DVD-Audio players in addition to the digital video. If you have an HDMI 1.1-equipped product, the only connection needed for listening in the main room is from the HDMI output of the source to either of the **HDMI Inputs** 37 on the AVR. If the player has SACD, HD-DVD or Blu-ray capability, you will need to connect the analog outputs of the source to the **8-Channel Direct Inputs** 10.
- **HDMI 1.2** (and higher) sources should be connected as shown above for HDMI 1.1, except that a separate analog connection is not needed for SACD players.
  HDMI 1.3 sources should be connected as shown above for HDMI 1.1, except that a separate analog connection is not needed for SACD, HD-DVD or Blu-ray players.

In addition, the AVR will convert analog video signals to the HDMI format, upscaling to high-definition 720p or 1080p resolution. You may view the AVR's own on-screen display menus using the HDMI output.

HDMI cable runs are usually limited to about 3 meters. The AVR incorporates a repeater, which allows an additional 3 meters of cable between the source device and the video display.

If your video display or source device is not HDMI-capable, you will need to use either a coaxial or optical digital audio connection and one of the analog video connections (composite, S- or component video), if available, as described in the next paragraphs.

- It is not possible to feed an analog composite or S-video signal to a recorder or the AVR's multizone system when an HDMI input is in use. If an HDMI-equipped source also has analog audio and video outputs, connect them to the **Video 2** or **Video 3 Video** 30 35 and **Audio** 23 29 on the AVR.
- In some instances, HDMI-equipped sources will not permit more than one video output at a time, and thus you cannot use the same source in the main listening room and with the recorder or remote zone at the same time. This is not a fault of the AVR, but rather a function of the content protection systems that are part of the HDMI standard.

HDMI Output Connections

Connect the **HDMI Output** 34 to an HDMI input on your video display. Thanks to the AVR 255/AVR 355's video processing system, all video input signals are converted to an HDMI output, so only one connection is required between the AVR and your display.

Referring to drawing of the remote control on page 11,there is a section of 7 buttons marked C, (AVR 355: 8 Buttons) near the top of the remote designated "Source Selectors": Cable/Sat, DVD, Media Server, Radio, TV, Game and AUX. Each of these buttons corresponds to a "source input". The AVR's flexible design allows you to use almost any combination of audio and video connections for each source device. The goal of the installation is to match up each of your source devices, e.g., DVD player and cable television box, with the correct connectors on the AVR.

You may connect a source device to any appropriate input connectors.Note which audio and video inputs are used for each device in Table A5 in the appendix. Table A1 indicates the default input-connection assignments, any of which may be changed to match the actual connections in your system.

The precise connections to be made depend on the capabilities of the source device and your video display (TV). Select the best audio and video connections for each source.

Analog and Digital Input Connections

1. Connect the analog output of a CD player to any of the analog audio inputs.

NOTE: When the CD player has both fixed and variable audio outputs it is best to use the fixed output unless you find that the input to the receiver is so low that the sound is noisy, or so high that the signal is distorted.

2. Connect the analog Play/Out jacks of a cassette deck, MD, CD-R or other audio recorder to the analog audio input jacks ❸. Connect the analog Record/In jacks on the recorder to the **audio output** jacks ❹ on the AVR.

3. Connect the digital output of any digital sources such as a CD or DVD changer or player, advanced video game, a digital satellite receiver, HDTV tuner or digital cable set-top box or the output of a compatible computer sound card to the **Optical** and **Coaxial Digital Inputs** ㉘㉔⓲⓱.
We recommend connecting the coaxial digital audio output of your DVD player to the **Coax 1 Digital Audio Input** ㉔, since that digital input is assigned to the DVD source by default.

If your DVD player has HDMI connection, use HDMI connection instead.

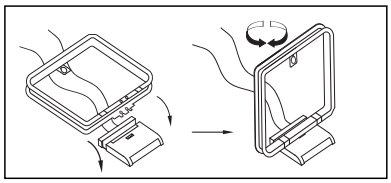
Although there is no official source on the AVR named CD, Phono or Audio, you may assign the audio device to an available source, such as TV (if the Cable/Sat source is in use for broadcast television), Game or AUX.

You can then add the name of the unit to the name of the assigned input, to make it read for example: "AUX - CD". (Please note that the AVR does not have a Phono input with RIAA for direct hook-up to a record player. You must use a separate RIAA preamplifier between a record player and the AVR)

NOTE: If you wish for your digital source device to be available for use by the multiroom system, you will need to connect its analog audio outputs to the appropriate inputs on the AVR 255/AVR 355, as the multiroom system is not capable of distributing digital signals to the remote zone.

4. Connect the **Coaxial or Optical Digital Outputs** ⓫ on the rear panel of the AVR to the matching digital input connections on a CD-R or MiniDisc recorder.

5. Assemble the AM Loop Antenna supplied with the unit as shown below. Connect it to the **AM** and **GND** screw terminals ❶.



6. Connect the supplied FM antenna to the **FM (75 ohm)** connection ❷. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna or a connection from a cable system. Note that if the antenna or connection uses 300-ohm twin-lead cable, you should use a 300-ohm-to-75-ohm adapter to make the connection.

7. With the AVR 355 turned off, connect the optional Harman Kardon The Bridge to The Bridge **Digital Media Player (DMP) Connector** ❾. Your compatible Apple® iPod® may be docked in The Bridge when you wish to use it as your audio source device. This function is available on the AVR 355 only. The AVR 255 features a STEREO JACK Input instead to which all sorts of portable devices can be connected via the headphone output of such device.

8. Connect the front, center and surround speaker outputs ⓮⓯⓰㉕ to the respective speakers.

To assure that all the audio signals are carried to your speakers without loss of clarity or resolution, we suggest that you use high-quality speaker cable. Many brands of cable are available and the choice of cable may be influenced by the distance between your speakers and the receiver, the type of speakers you use, personal preferences and other factors. Your dealer or installer is a valuable resource to consult in selecting the proper cable.

Regardless of the brand of cable selected, we recommend that you use a cable constructed of fine, multistrand copper with a cross-section greater than 2 mm^2.

Cable with a cross-section of 1.5 mm^2 may be used for short runs of less than 4 m. We do not recommend that you use cables with a cross-section less than 1 mm^2 due to the power loss and degradation in performance that will occur.

Cables that are run inside walls should have the appropriate markings to indicate listing with any appropriate testing agency standards. Questions about running cables inside walls should be referred to your installer or a licensed electrician who is familiar with the applicable local building codes in your area.

When connecting wires to the speakers, be certain to observe proper polarity. Note that the positive (+) terminal of each speaker connection now carries a specific color code as noted on page 8. However, most speakers will still use a red terminal for the postive (+) connection. Connect the "negative" or "black" wire to the same terminal on both the receiver and the speaker.

NOTE: While most speaker manufacturers adhere to an industry convention of using black terminals for negative and red ones for positive, some manufacturers may vary from this configuration. To assure proper phase and optimal performance, consult the identification plate on your speaker or the speaker's manual to verify polarity. If you do not know the polarity of your speaker, ask your dealer for advice before proceeding, or consult the speaker's manufacturer.

We also recommend that the length of cable used to connect speaker pairs be identical. For example, use the same length piece of cable to connect the front-left and front-right or surround-left and surround-right speakers, even if the speakers are a different distance from the AVR.

9. Connections to a subwoofer are normally made via a line level audio connection from the **Subwoofer Output** ❺ to the line-level input of a subwoofer with a built-in amplifier. When a passive subwoofer is used, the connection first goes to a power amplifier, which will be connected to one or more subwoofer speakers. If you are using a powered subwoofer that does not have line-level input connections, follow the instructions furnished with the speaker for connection information.

10. If an external multi-channel audio source with 5.1 outputs such as an external digital processor/decoder, DVD-Audio, SACD, Blu-ray or HD-DVD player is used, connect the outputs of that device to the **8-Channel Direct Inputs** ❿, or, more easy, use the HDMI connection between such a device and the AVR, or both.

Video Equipment Connections

Video equipment is connected in the same manner as audio components. Again, the use of high-quality interconnect cables is recommended to preserve signal quality. To ensure best video performance S-Video sources should be connected to the AVR only with their S-Video In/Outputs, not with their composite video connectors too.

If you have already connected a source device to one of the HDMI inputs as explained in the Audio Equipment section, then you have automatically made a video connection at the same time, as the HDMI signal includes both digital audio and video components.

If your video display or source device is not HDMI-capable, you will need to use one of the analog video connections (composite, S- or component video), if available, as described below.

If the source device is not capable of transmitting its digital audio signal through the HDMI connection, then use one of the coaxial or optical digital audio inputs for the source.

If a multichannel analog audio connection is required for certain lossless formats (e.g. DVD-Audio, SACD, HD-DVD or Blu-ray Disc), you may make both connections. To listen to the multichannel disc, first select the HDMI source input, then select the 6-/8-channel analog audio inputs, and the AVR will retain the last video source you selected.

1. Connect a VCR's audio and video Play/Out jacks to the **Video 2 and Analog 4 In** jacks ❾❿ on the rear panel. The Audio and Video Record/In jacks on the VCR should be connected to the **Video 2 and Analog 4 Out jacks** ❻❽ on the AVR.

2. Connect the digital audio outputs of a CD, MD or DVD player, satellite receiver, cable box or HDTV converter to the appropriate **Optical** or **Coaxial Digital Inputs** ❷❹⓱⓲.

NOTE: When connecting a device such as a digital cable box or other set-top tuner product with a digital audio output, we recommend that you connect both the digital and analog outputs of the product to your AVR. The audio input polling feature of the AVR will then be able to make certain that you have a constant audio feed, since it will automatically switch the audio input to the analog jacks if the digital feed is interrupted or not available for a particular channel.

3. Connect the **Composite** and **S-Video** (if S-Video device is in use) **Monitor Output** ⓬ jacks on the receiver to the composite and S-Video input of your television monitor or video projector.

4. If your DVD player and monitor both have component video connections, connect the component outputs of the DVD player to the **Video 1 Component Video Inputs** ㉒. Note that even when component video connections are used the audio connections must still be made to either one of the analog audio inputs or any of the **Optical** or **Coaxial Digital Input** jacks ❷❹.

5. If another component video device is available, connect it to the **Video 2 or Video 3 Component Video Input** jacks ⓴㊶. The audio connections for this device should be made to either one of the audio input jacks or any of the **Optical** or **Coaxial Digital Input** jacks ❷❹.

6. If the component video inputs are used, connect the **Component Video Output** ㉑ to the component video inputs of your TV, projector or display device.

7. If you have a camcorder, video game or other audio/video device that is connected to the AVR on a temporary, rather than permanent basis, connect the audio, video and digital audio outputs of that device to the **Front Panel Inputs** ⓱⓲⓳.

System and Power Connections

The AVR is designed for flexible use with multi-room systems, external control components and power amplifiers.

Main Room Remote Control Extension
If the receiver is placed behind a solid or smoked glass cabinet door, the obstruction may prevent the remote sensor from receiving commands. In this event, the remote sensor of any Harman Kardon or other compatible device, not covered by the door, or an optional remote sensor may be used. Connect the **Remote IR Output** of that device or the output of the remote sensor to the **Remote IR Input** jack ㉛.

If other components are also prevented from receiving remote commands, only one sensor is needed. Simply use this unit's sensor or a remote eye by running a connection from the **Remote IR Output** jack ㉛ to the **Remote IR Input** jack on Harman Kardon or other compatible equipment.

Zone II IR Link
(Limited options on AVR 255)
The key to remote room operation is to link the remote room to the AVR's location with wire for an infrared receiver and speakers or an amplifier. The remote room IR receiver (this can be an optional IR receiver or any other remotable Harman Kardon device in the remote room with IR sensor integrated) should be connected to the AVR via standard coaxial cable. Connect the **Remote IR Output** of the device or of the optional sensor with the **Zone II IR Input** jack ㉜ on the AVR's rear panel.

If other Harman Kardon compatible source equipment is part of the main room installation, the **Remote IR Output** jack ㉛ on the rear panel should be connected to the IR IN jack on that source device. This will enable the remote room location to control source equipment functions.

When a remote IR sensor is used to control non-Harman Kardon source equipment, we recommend that you make a direct connection or use an optional, external IR "blaster" connected to the **Remote IR Carrier Output** Jack ㊵. If you are in doubt as to which IR Output jack to use for the equipment in your system, contact your dealer or installer, or the manufacturer's support site and ask whether the unit to be controlled uses "full carrier" or "stripped" carrier IR commands. When "full carrier commands" are used, make the connection to the **Remote IR Carrier Output** Jack ㊵. Otherwise, make the connection to the **Remote IR Output Jack** ㉛ as noted above (IR Carrier Output available on AVR 355 only).

NOTE: All remotely controlled components must be linked together in a "daisy chain". Connect the **IR OUT** jack of one unit to the **IR IN** of the next to establish this chain.

Multiroom Audio Connections
Depending on your system`s requirement and distance from the AVR to the remote room, three options are available for audio connection:

Option 1 (on AVR 355): Use high-quality, shielded audio interconnect phono cable from the AVR's location to the remote room. In the remote room, connect the interconnect cable to a stereo power amplifier. The amplifier will be connected to the room's speakers. At the AVR, plug the audio interconnect cables into the **Zone 2 Out** Jacks ㊳ on the AVR's rear panel.

Option 2 (on AVR 355): Place the amplifier that will provide power to the remote location speakers in the same room as the AVR, and connect the **Zone 2 Out** jacks ㊳ on the rear panel of the AVR to the audio input of the remote room amplifier. Use the appropriate speaker wire to connect the optional power amplifier to the remote speakers. High-quality wire of at least 2.5 mm^2 is recommended for long multiroom connections.

Option 3 (on AVR 255 and AVR 355): Taking advantage of the AVR's built-in seven-channel amplifier, it is possible to use two of the amplifier channels to power speakers in the remote room. When using this option you will not be able to use the full 7.1-channel capabilities of the AVR in the main listening room, but you will be able to add another listening room without additional external power amplifiers. To use the internal amplifiers to power a remote zone, connect the speakers for the remote room location to the **Surround Back/Multiroom Speaker Outputs** ㉕. Before using the remote room you will need to configure the amplifiers for surround operation by changing a setting in the Multiroom menu, following the instructions shown on page 18.

NOTE: For all options, you may connect an optional IR sensor (Harman Kardon He 1000) in the remote room to the AVR via an appropriate cable. Connect the sensor's cable to the **Zone 2 IR Input** ㉜ on the AVR and use the Zone II remote to control the room volume. Alternatively, you may install an optional volume control between the output of the amplifiers and the speakers.

NOTE: The AVR 355's multiroom system is only capable of distributing analog audio sources to the remote zone. Therefore, when connecting your digital audio equipment (e.g. CD or DVD players) as described on page 18, make sure to use both analog and digital audio connections to ensure that the devices will be available to the multiroom system.

A-BUS Installation Connections
(AVR 355 only)
The AVR is among the very few receivers available today that offers built-in A-BUS Ready® operation. When used with an optional A-BUS keypad or control module, you have all the benefits of remote zone operation without the need for an external power amplifier.

To use the AVR with an approved A-BUS product, simply connect the keypad or module that is in the remote room to the AVR using standard "Category 5" wiring that is properly rated for the inwall use specific to the installation. Terminate the wiring at the receiver end to a standard RJ-45 jack in compliance with the instructions furnished with the A-BUS module.

You may connect a single A-BUS module to the AVR 355 with no further equipment needed. If you wish to connect more than one A-BUS module, an optional, external A-BUS hub may be used to provide that capability.

No further installation or adjustment is needed, as the A-BUS connector on the AVR routes the signals in and out of the keypad to their proper destination for power, signal source and control. The output fed to the A-BUS jack is determined by the AVR's multiroom system, and the menus may be used as is.

AC Power Connections
This unit is equipped with one accessory AC outlet. It may be used to power accessory devices, but should not be used with high-current draw equipment such as power amplifiers. The total power draw to the **Switched** Outlet ⑰ should not exceed 50 watts.

The **Switched** ⑰ outlet will receive power only when the unit is on completely. This is recommended for devices that have no power switch or a mechanical power switch that may be left in the "ON" position.

NOTE: Many audio and video products go into Standby mode when they are used with switched outlets, and cannot be fully turned on using the outlet alone without a remote control command.

The AVR draws significantly more current than other household devices such as computers that use removable power cords. For that reason, it is important that only the cord supplied with the AVR 355 (AVR 255 has a fixed power cord) or a direct replacement of identical capacity be used.

Once the power cord is connected, you are almost ready to enjoy the AVR 255/AVR 355's incredible power and fidelity!

Speaker Selection

No matter which type or brand of speakers is used, the same model or brand of speaker should be used for the front-left, center and front-right speakers. This creates a seamless front soundstage and eliminates the possibility of distracting sonic disturbances that occur when a sound moves across mismatched front-channel speakers.

Speaker Placement

The placement of speakers in a multichannel home-theater system can have a noticeable impact on the quality of sound reproduced.

Depending on the type of center-channel speaker in use and your viewing device, place the center speaker either directly above or below your TV, or in the center behind a perforated front-projection screen.

Once the center-channel speaker is installed, position the left-front and right-front speakers so that they are as far away from one another as the center-channel speaker is from the preferred listening position. Ideally, the front-channel speakers should be placed so that their tweeters are no more than 60 cm above or below the tweeter in the center-channel speaker.

They should also be at least 0.5 meter from your TV set unless the speakers are magnetically shielded to avoid colourings on the TV screen. Note that most speakers are not shielded, even with complete surround sets only the Center speaker may be.

Depending on the specifics of your room acoustics and the type of speakers in use, you may find that imaging is improved by moving the front-left and front-right speakers slightly forward of the center-channel speaker. If possible, adjust all front loudspeakers so that they are aimed at ear height when you are seated in the listening position.

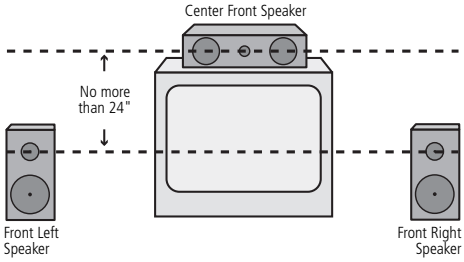
Using these guidelines, you'll find that it takes some experimentation to find the correct location for the front speakers in your particular installation. Don't be afraid to move things around until the system sounds correct. Optimize your speakers so that audio transitions across the front of the room sound smooth.

When the AVR is used in 5.1-channel operation, the preferred location for surround speakers is on the side walls of the room, at or slightly behind the listening position. In a 6.1-channel system, a back surround speaker is required, ideally placed at the center of the room's rear wall, pointing directly towards the front center channel speaker. The center of the speaker should face you (see below).

In a 7.1-channel system, both side surround and back surround speakers are required. The center of the speaker should face you (see below).

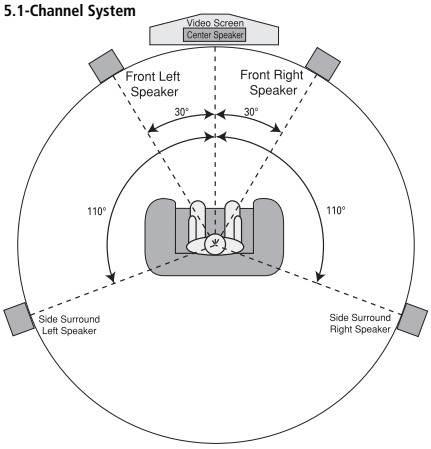
Rear surround speakers are required when a full 7.1-channel system is installed, and they may also be used in 5.1 channel mode as an alternative mounting position when it is not practical to place the main surround speakers at the sides of the room. Speakers may be placed on a rear wall, behind the listening position. As with the side speakers, the center of the rear surrounds should face you. The speakers should be no more than 2 meters behind the rear of the seating area.

It is appropriate to configure the AVR 255/ AVR 355 for either 5.1- or 7.1-channel operation, but not for 6.1 channels. When 6.1-channel program material or a 6.1-channel processing mode is in use, material for the surround back channel will be outputted simultaneously through both the **Surround Back Left** and **Right Speaker Outputs** ㉕. Connecting only one loudspeaker to these speaker terminals will not only deprive you of the benefits of 7.1-channel surround modes, such as Logic 7, but will also interfere with the functioning of EzSet/EQ speaker setup and calibration, as described on page 22. It may also put undesirable strain on the surround back amplifier circuits and power supplies.

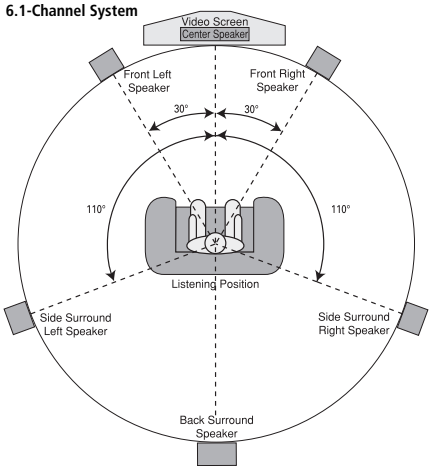


A) Front Channel Speaker Installation with Direct-View TV Sets or Rear-Screen Projectors.

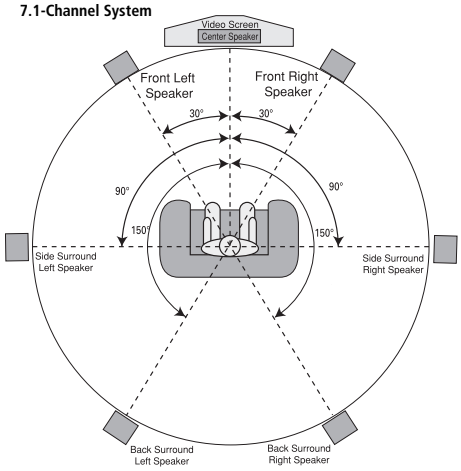
5.1-Channel System

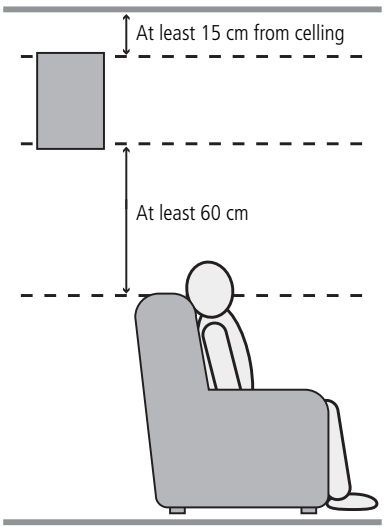


6.1-Channel System



7.1-Channel System





Subwoofers produce largely nondirectional sound, so they may be placed almost anywhere in a room. Actual placement should be based on room size and shape and the type of subwoofer used. One method of finding the optimal location for a subwoofer is to begin by placing it in the front of the room, about 15 cm from a wall, or near the front corner of the room. Another method is to temporarily place the subwoofer in the spot where you will normally sit, and then walk around the room until you find a spot where the subwoofer sounds best. Place the subwoofer in that spot. You should also follow the instructions of the subwoofer's manufacturer, or you may wish to experiment with the best location for a subwoofer in your listening room.

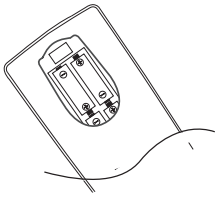
Once the speakers have been placed in the room and connected, the remaining steps are to program the system configuration memories.

Although it is necessary to assign input/output settings and surround mode choices manually, we recommend that you take advantage of the power and precision of EzSet/EQ to automatically select and enter the settings for all other audio parameters. This will not only save you time; it will ensure that your room is calibrated and equalized with an accuracy not possible when these settings are made manually. You are now ready to power up the AVR 255/AVR 355 to begin these final adjustments.

First Turn On

You are now ready to power up the AVR to begin these final adjustments.

1. Plug the **Power Cable** ⑲ into an unswitched AC outlet.
2. Press the **Main Power Switch** on the rear panel so that is is in the ON position. Note that the **Power Indicator** 3 will turn amber, indicating that the unit is in Standby mode.
3. Remove the protective plastic film from the main front-panel. If left in place, the film may affect the performance of your remote control.
4. Install the four supplied AAA batteries in the remote as shown. Be certain to follow the (+) and (–) polarity indicators that are on the top of the battery compartment.



5. Turn the AVR on either by pressing the **System Power Control** 2 on the front panel, or via the remote by pressing the **AVR Power ON Button** Ⓐ, or any of the **Input Selectors** Ⓒ on the remote. The **Power Indicator** 3 will turn white to confirm that the unit is on, and the **Main Information Display** 13 will also light up.

Using the On-Screen Display

When making the following adjustments, you may find them easier to make via the unit's on-screen display system. These easy-to-read displays give you a clear picture of the current status of the unit and facilitate speaker, delay, input or digital selection you are making.

To view the on-screen displays, make certain you have made a connection from either the **HDMI Output** ㉞ or the **Video Monitor Out** jack ⑫㉑ on the rear panel to the HDMI, component, composite or S-Video input of your TV or projector. In order to view the AVR's displays, the correct video input must be selected on your video display.

IMPORTANT NOTE: When viewing the on-screen menus using a CRT-based projector, plasma display or any direct-view CRT monitor or television, it is important that they not be left on the screen for an extended period of time. As with any video display, constant display of a static image such as these menus or video game images may cause the image to be permanently "burned into" the CRT. This type of damage is not covered by the AVR warranty and may not be covered by the projector TV set's warranty.

The menu system is accessed by pressing the AVR Settings Button on the remote Ⓨ.
The Main Menu will appear (see Figure 1), and if a video source is playing, it will be visible behind the transparent menu.



Figure 1 – Main Menu

The menu system consists of five main menus: Source Selection, Setup Source, Speaker Setup, Zone 2 and System.

Use the ▲/▼/◀/▶ Buttons on the remote or front panel to navigate the menu system, and press the **OK** Button to select a menu or setting line or to enter a new setting.
The current menu, setting line or setting will appear on the Lower Line of the Message Display as well as on screen.
To return to the previous menu, press the Back/Exit Button. Be certain all settings are correct, as any changes you have made will be retained. When the Main Menu is on screen, pressing the **Back/Exit** Button will exit the menu system.

System Setup

The AVR 255/AVR 355 features an advanced memory system that enables you to establish different configurations for digital input and surround mode for each input source. This flexibility enables you to custom tailor the way in which you listen to each source and have the AVR memorize them. This means, for example, that you may associate different surround modes and analog or digital inputs with different sources. Once these settings are made, they will automatically be recalled whenever you select that input.

However, we recommend that the first time you use the AVR, you take advantage of the simplicity of configuring the system using the EzSet/EQ process, which takes the guesswork out of speaker size and delay settings, and balances the speaker output levels to tailor the AVR's sound presentation to your specific system and room. Before beginning the EzSet/EQ procedure, there are a few adjustments that need to be made to ensure accurate results.

Source Selection

For direct access to any source, press its Source Selector on the Remote Control Ⓒ. Sources can also be chosen from the Source Selection menu that can be activated by pressing the AVR Settings Button Ⓨ on the remote control.

The AVR will switch to the audio and video inputs assigned to the source. If you specified a surround mode for the source, the AVR will switch to that mode.

The source name will appear in the upper line of the front-panel display. If you retitled the source, the new title will appear. The audio input assigned to the source (analog or one of the digital audio inputs) will also appear. The surround mode will be displayed on the lower line.

Any other settings you adjusted in the Setup Source menu will also be selected. You may view these settings in the Source Info menu at any time by pressing the Info Settings Button Ⓨ.

Audio and Video Input Selection

Please see Table A1 in the appendix for the factory default input assignments for each source. You may assign any available input to any source using the Source Info menu, accessible either by pressing the AVR Settings Button Ⓨ and selecting the Setup Source line, or by pressing the Info Settings Button Ⓨ for direct access.

When a source is selected, the AVR will check the assigned digital audio input for a signal. If one is present, the digital input will be selected. If not, the AVR will select the analog audio input specified at the Audio Auto Polling line of the Setup Source menu. If you don't want the AVR to select an analog audio input for the source, change this setting to Off.

The AVR will also select the assigned video source. There are no "Audio Only" sources on the AVR, other than the Radio, which uses a special on-screen menu. If no video signal is present, the display will remain black. You may pair an audio device with an A/V device's video signal using the Source Info menu as explained in the Initial Setup section. Sources may share audio or video inputs to suit your application.

Set Up Sources

The Source Info menu is used to assign the correct physical audio and video connections to each source. It also provides access to a variety of other settings, many of which may be adjusted later as you become more familiar with the AVR.

The following settings are not optional and must be adjusted now to enable playback of each source: Video Input from source, Audio Input from Source and Resolution to Display.

The other settings may be adjusted at any time to improve performance.

To display the Source Info menu, press the Info Settings Button (front panel 8 or remote Ⓨ). A screen similar to the one shown in Figure 2 will appear. This screen may also be accessed from the Main Menu by selecting the Setup Source line and selecting a source from the slide-in menu.



Figure 2 – Setup Source Menu

Audio Effects: Select this line to display the Audio Effects submenu, where you may: adjust the bass and treble tone controls; adjust the LFE trim; activate the saved EzSet/EQ settings or adjust the night mode setting. It is recommended that you leave this submenu at its default settings, and return to it later if your system requires any fine-tuning.
See the Advanced Functions section for more information.

Video Modes: Select this line to display the Video Modes submenu, where you select from preprogrammed or custom picture settings and make picture adjustments. It is recommended that you leave the settings at their factory defaults. Picture adjustments should be made to your video display first, with this menu used only for fine-tuning.
See the Advanced Functions section for more information.

Surround Mode: Select this line to display the Surround Mode submenu, where you may program the desired surround mode for various types of analog programs, including movies, music and games. You may also specify a specific stereo mode (depending on the number of channels desired) and a virtual surround mode if your system uses fewer than the full complement of seven main speakers (plus a subwoofer).

Digital surround signals, such as Dolby Digital and DTS programs, are automatically played in their native formats, although you may change the surround mode at any time.
See the Advanced Functions section for information on surround modes available with digital programs.

In the factory default Auto Select mode, the AVR will analyze the source signal and select the optimum playback mode. At the factory the AVR was programmed to use Logic 7 Movie mode for optimal playback of movies, including television programs; Logic 7 Music mode for music recordings, such as CDs; and Logic 7 Game mode when a video game console is in use.

Audio Format From Source: This line is informational only. When a digital program is playing, its format will be identified here. When analog audio programs are playing, this line indicates NO AUDIO INPUT, referring to digital inputs only.

Video Input from source: Select this line to assign the correct video input to the source. Refer back to Table A5 in the appendix, where you noted the physical video input the source is connected to, and select the input here.

Audio Input from source: Select this line to assign the correct analog or digital audio input to the source. Refer back to Table A5 in the appendix, where you noted the physical audio input the source is connected to, and select the input here. If both analog and digital audio connections were made, select the digital input here, and select the analog input at the Audio Auto Polling line below.

NOTE: For sources connected to an HDMI Input, the Video and Audio Input settings should indicate the same HDMI connection.

Resolution to Display: This line reflects the video output resolution, which is dependent upon the capabilities of the video display.

NOTE: When using the AVR's on-screen menu system, we recommend selecting a video output resolution of 720p or higher for best legibility, and to provide graphics that simplify some configuration options. Depending on the resolution selected, the menus shown by your system may vary in appearance.

• If the display is connected to the AVR's Composite or S-Video Monitor Output, the video output resolution must be manually set to 576i to view any content, including the AVR's own menus. The AVR's default resolution is set to 576i.

Since there is no picture if the resolution is set higher than the display's capability, or if the HDMI system does not automatically select the best resolution, in these cases you must adjust the resolution by pressing the front-panel Resolution Button followed by the **Up/Down** Buttons 4 until the correct setting appears on the Lower Line of the front-panel Message Display and confirm with the **OK** Button 6. The Display now shows CANCEL, and you must scroll to have the Display show ACCEPT with the **Up/Down** Buttons 4 and then press **OK** to make the new Resolution take effect. If you press OK when CANCEL is on the screen, or if you do nothing, the Resolution remains as it was before. For composite and S-video, the correct setting is 576i. For component video, it is the highest resolution where a picture is visible.

NOTE: When the display has a DVI input which is connected to the AVR using an HDMI-to-DVI adapter, if the display is not HDCP-compliant, the picture will be distorted. In that case, a different video connection must be used (component, composite or S-video).

Resolution from Source: This line, which is informational only, indicates the video format (NTSC or PAL) output by the source device.

Adjust Lip Sync: Use this adjustment to resynchronize the audio and video signals from a source to eliminate a "lip sync" problem. Lip sync issues can occur when the video portion of a signal undergoes additional processing in either the source or the video display that desynchronizes it from the audio. Select this line to display the Lip Sync adjuster by itself, enabling you to view the video while listening to the audio. Use the ◀/▶ Buttons to delay the audio by up to 180ms. See Figure 3.



Figure 3 – Adjust Lip Sync

Change Name: Use this line to change the display name for your source. This can be useful if your source's device type is different from the available source names. Select this line and use the ▲/▼ Buttons to scroll forward or reverse through the letters A through Z. When the desired letter appears, use the ▶ Button to move the cursor to the next position. Move the cursor again to leave a blank space. When you have finished entering the new name, press the **OK** Button. The name will be used on the front panel to refer to the source, and will appear next to its original name, e.g. DVD, throughout the on screen menu system. To end the entry without making any changes, press the Back/Exit Button.

Audio Input Polling: Use this setting when both analog and digital audio connections are made from the source device to the AVR. When no digital signal is present, the AVR will automatically switch to the analog audio input.

This can be useful for some older cable television systems that broadcast some channels in analog audio and others in digital audio. It is also useful for making analog recordings of copy-protected digital sources. However, it can be inconvenient when no analog audio connection is made and playback is stopped, as the audio signal will be lost.

If an analog audio connection was made, select it here. If not, choose the Off setting, and the AVR will always use the digital audio connection.

Zone 2 Audio: When a multizone system has been connected and is in use, this setting determines the source for the remote zone. Select any analog audio input or the tuner. Digital audio is not available to the multizone system, nor is any type of video.

Use the Back/Exit Button to return to the Setup Source line of the Main Menu. Press the OK Button, and select the next source to configure. When you have finished configuring all sources, press the Back/Exit Button to clear the menus from view.

You are now ready to begin enjoying your new receiver!

Speaker Setup

With EzSet/EQ you are able to calibrate your system in a fraction of the time it would take to enter the settings manually, and with results that rival those achieved with expensive test equipment and time-consuming procedures. The end result is a system calibration profile that enables your new receiver to deliver the best possible sound, no matter what type of speakers you have or what the dimensions of your listening room are.

We recommend that you take advantage of the precision of EzSet/EQ to calibrate your system, but if desired you may also make any of the configuration settings manually, or trim the settings provided by EzSet/EQ by following the instructions.



Figure 4

Step 1: EzSet/EQ requires that your listening room have as little background noise as possible to avoid interfering with the measurement of tones produced by your AVR during the setup procedure. Turn off all loud fans, air conditioners and other equipment, and try to avoid making any noise during the process.

Step 2: The EzSet/EQ microphone should be placed in either your usual listening position or, if there is a large seating area, the center of the room, at the listeners' ear level. You may find it convenient to use a camera tripod for stable placement of the EzSet/EQ microphone at the correct height. The microphone includes a threaded insert on the bottom for tripod mounting.

Step 3: Plug the EzSet/EQ microphone into the AVR 255/AVR 355's **Headphone Jack 4**, making certain that the mini-plug to 1/4" phone plug adaptor supplied with the microphone is firmly connected. The microphone cable is approximately 7 meter long, which should accommodate most listening room situations. If required, you may use an optional extension cable, available at most electronics stores, for use in larger rooms. However, we recommend that you avoid using extension cords for the microphone cable, as they may adversely affect the test results.

Step 4: Once the microphone is properly positioned and plugged in, proceed to the Speaker Setup menus by first pressing the **AVR Settings Button Y** to bring the main Menu to the screen. Next, press the ▲/▼ **Navigation Buttons 14** to highlight the `Speaker Setup` -tab, and press **OK X** to access the `SPEAKER SETUP MENU`. Press the ▲ Button **F** to select the `Automatic Setup - EzSet/EQ` -line and press the **OK Button X** to move to the next screen (Figure 5).



Figure 5

Step 5: The first screen of the EzSet/EQ system will now appear to remind you to plug in the microphone. If you have not already done so, plug the microphone into the **Headphone Jack 4** as described in steps 2 and 3. When you are ready to proceed, make certain that the cursor is pointing to **Continue** and press the **OK Button X**. If you do not wish to continue with the EzSet/EQ process, press the ▲/▼ **Navigation Buttons F5** to highlight **Cancel** and then press the **OK Button X** to return to the **Speaker Setup**.



Figure 6

Step 6: After you select "Continue", the screen shown in Figure 6 will appear. Although the AVR may be used with up to eight speakers, you may have elected not to install surround back speakers at this time, or you may have decided to use the surround back speaker channels to power speakers in the remote room of a multiroom system. This screen directs you to program EzSet/EQ for a 5.1- or 7.1-channel configuration. Select the setting that reflects the number of speakers installed in your system, and EzSet/EQ will do the rest automatically!

NOTE: If you are using fewer than six speakers in your system, then it will not be possible to configure your speakers using EzSet/EQ, and you will need to select Manual Configuration as described starting on page 24. If you have selected a 6.1-channel configuration, using only a single surround back speaker, it is possible to use a combination of EzSet/EQ automatic configuration for 5.1 speakers, connect the single surround back speaker to the left Surround Back Speaker Output, and then configure the surround back speaker manually, as described from page 25. However, we do not recommend the 6.1-channel configuration.

If you have forgotten to plug in the EzSet/EQ microphone, the warning screen shown in Figure 7 will appear as a reminder.



Figure 7

NOTE: As shown in the Figures, while EzSet/EQ is in progress a **Cancel** setting is highlighted. You may interrupt EzSet/EQ at any time by simply pressing the **OK Button** ⓧ.

IMPORTANT NOTE: Anyone with hearing that is sensitive to loud noises should leave the room at this point, or use ear protection sufficient to reduce the noise level. Inexpensive foam-style ear plugs, available at most drug stores, may be used to reduce the sound level to a tolerable level. If you are uncomfortable with, or cannot tolerate, loud sounds and do not use some sort of ear protection, we strongly recommend that you leave the room and ask someone else to run the EzSet/EQ process, or that you do not use EzSet/EQ and enter the configuration settings manually, as described on pages 24 through 27.



Figure 8

Step 7: Once EzSet/EQ has been started, you will hear test signals circulate among all of the speakers as the system sets the master level, checks to see where there are speakers, sets the distance measurement and calculates delay time settings, sets the speaker "size", and sets the speaker crossover point. During the measurement and calibration process, you may observe the progress of the testing by reading the messages that appear in the second line of the menu listing.

EzSet/EQ uses the left front speaker to set the master volume level, and then it proceeds directly to measuring the speaker output levels.

Step 8: When the EzSet/EQ process has finished, a screen will appear with its results.. You may press the **OK Button** ⓧ, and the **Speaker Setup** screen shown in Figure 4 will appear.

Unplug the microphone and store it in a safe place so that it is available to recalibrate your system if needed due to a change in speakers, preferred listening position, or a major change in the room's furnishings (such as the addition of thick carpeting or plush furniture) that might require different settings.

When you have successfully completed the EzSet/EQ process and made any needed adjustments to the input and surround mode configurations, your receiver is ready for use. If you do not wish to make any manual adjustments to the settings, you may skip the rest of this section and proceed to the Basic Operation section of this manual on page 30 to learn how to operate AVR 255/AVR 355. For those situations where you may wish to make a change to the settings entered by EzSet/EQ, follow the instructions on the following pages.

Manual Setup

The AVR 355/AVR 255 is flexibly designed to be used with almost any loudspeakers available. The flexibility arises from the AVR 355/AVR 255's capability tobe configured to match the characteristics of your particular speakers, and to compensate for the acoustic characteristics of your room.

EzSet/EQ automatically detects the capabilities of each speaker, and optimizes the AVR 355/ AVR 255's performance in your system. However, if forsome reason you are unable to run EzSet/EQ, e.g., you have misplaced the microphone, or if you wish to make further adjustments to the settings made by EzSet/EQ, you may use the Manual Setup on-screen menus as described in this section.

Before beginning manual setup place your loudspeakers in their correct locations within the room (see Speaker Placement section), and connect them to the AVR. You will need the specifications for each of your speakers, which may usually be found in the owner's guide for the speakers or on the manufacturer's Web site. If necessary, contact the manufacturer to obtain the frequency range specification. Although the output-level setting portion of manual setup may be performed "by ear," we recommend that you purchase an SPL (sound-pressure level) meter at a local electronics store.

We suggest that you record your configuration settings in the appropriate places in Tables A3 through A7 in the appendix in case you need to reenter them after a system reset, or if the AVR's Master Power Switch is turned off or the unit is unplugged for more than four weeks.

Step One – Determine Speaker Crossover

Without using EzSet/EQ, the AVR 355/ AVR 255 can't detect how many speakers you've connected to it; nor can it determine their capabilities. For this part of the system setup consult the speaker's technical specifications.

Locate the frequency response, which is usually given as a range, e.g., 100Hz – 20kHz (±3dB). This specification tells you whether the speaker is able to play sounds that are very high- or low-pitched, represented by the high and low frequencies. We are concerned with the lowest frequency that each of your main speakers is capable of playing, which is 100Hz in this example. Use the Table A5 worksheet in the appendix to note this number as the crossover for that speaker (not the same as the crossover frequency listed in the speaker's specifications).

The subwoofer's frequency response will include only the very lowest frequencies, since the subwoofer is designed to play only bass materials.

A typical frequency response for a subwoofer is 25Hz – 150Hz. In this case, the higher number should be noted in the worksheet.

This information is required to program the receiver's bass management, which determines which speakers the receiver will use to playback the low-frequency (bass) portion of the source program.

If you send the lowest notes to small satellite speakers, you won't hear these notes very well, and you may even damage the speaker by exceeding its capabilities. If you send the highest notes to the special purpose subwoofer, you may not hear them at all.

With proper bass management, the AVR 355/ AVR 255 divides the source signal at a crossover point. All information above the crossover point is played through the satellite speaker (front left/right, center, surround left/right, or surround back left/right), and all information below the crossover point is played through the subwoofer. This enables each loudspeaker in your system to perform at its best, delivering an enjoyable sound experience.

Step Two – Measure Speaker Distances

Ideally, all of your speakers were placed in a circle, each at the same distance from the listening position. However, your room may not be ideal, and you may have had to place some speakers a little further away than others. This could affect the overall sound of the receiver, as sounds that are supposed to arrive simultaneously from different speakers blur due to different arrival times.

The AVR 355/AVR 255 has a delay adjustment that enables the receiver to compensate for real-world speaker placements.

Before you begin making adjustments, measure the distance from each speaker to the listening position, and note it in the Table A3 worksheet in the appendix. Even if all of your speakers are the same distance from the listening position, you should enter your speaker distances as described in Step Three.

Step Three – Manual Setup Menu

Now you are ready to program these adjustments into the receiver. It's best to sit in the usual listening position and make the room as quiet as possible.

With the receiver and video display turned on, press the AVR Button on the remote to display the menu system. Use the ▼ Button to move the cursor to the Speaker Setup line, and press the **OK** Button to display the Speaker Setup menu. See Figure 4.

If you have run EzSet/EQ, those results were saved. To tweak the EzSet/EQ results, or to configure the AVR from scratch, select Manual Setup. The screen shown in Figure 9 will appear.



Figure 9 – Manual Speaker Setup Menu

NOTE: All of the speaker setup submenus include the Exit and Back options as shown at the bottom of Figure 9. To return to a previous menu without making any changes, press Exit. To save the current settings, select the Back option.

If you previously saved EzSet/EQ results in this setup position and you wish to reconfigure the speakers from scratch, select the Reset option.

For best results, we recommend configuring the speakers in this order, although it may differ from the order in which the submenus appear in the Manual Speaker Setup menu: Number of Speakers, Crossover(Size), Sub Mode, Distance and Level Adjust.

Number of Speakers

Move the cursor to the Number of Speakers line and press the SetButton. See Figure 10.



Figure 10 – Number of Speakers Menu

The Number of Speakers menu lists each of the speaker groups.

Program the correct setting for each group: ON when the speakers are present in the system, and OFF for positions where no speakers havebeen installed. The Front Left & Right speakers are always ON and may not be disabled. Any changes made to the system configuration will be reflected in the total number speakers displayed at the top of the screen.

The setting for the surround back speakers includes a third option: **Zone 2**. The AVR 355/ AVR 255 is among the few receivers in its class that is capable of multizone operation, allowing placement of a pair of speakers in another room with listeners in the remote room enjoying either the same program as in the main room or a different source. The AVR's assignable surround back amplifier channels make multizone operation easier than ever, since an external power amplifier is no longer required. Simply select the Zone 2 option at this line, and connect the Surround Back Speaker Outputs to loudspeakers located in the remote room. The main room will be configured automatically for up to 5.1channels. See the Multizone Operation section for more information.

The settings in this menu affect a number of aspects of the AVR's operation, including the remainder of the speaker setup process and the availability of various surround modes at any time.

When you have finished programming the number of speakers in the system, select the Back option to insure the settings are saved correctly.

You may use the Back/Exit Button, and the settings will be saved.

Adjust Crossover Frequencies Menu

After you have programmed the number of speakers in the system, the AVR will return to the Manual Speaker Setup menu. Navigate to the Crossover (Size) line and press the **OK** Button to display the Adjust Crossover Frequencies menu (see Figure 11).



Figure 11 – Adjust Crossover Frequencies Menu

The AVR will only display those speaker groups which you programmed in the Number of Speakers menu.

Refer back to Step One, where you determined each speaker's crossover. Again, for the main speakers, this is the lowest frequency the speaker reproduces well; and for the subwoofer, it's the highest.

For each main speaker, select one of the seven crossover frequencies: 40Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz or 200Hz. If the crossover frequency you determined in Step One is below 40Hz, select the first option, "Large". This setting doesn't refer to the speaker's physical size, but to its frequency response, which is also called "full range". This means the speaker is capable of playing sounds throughout the frequencyspectrum, from the high pitches to the bass.

Specify the size of the subwoofer's transducer as 8, 10, 12 or 15 inches.

Make a note of each speaker group's crossover setting in Table A3 inthe appendix.

When you have finished entering the settings, remember to select **Back**, not to press the Exit Button.

Sub Mode

Move the cursor to the Sub Mode line to program bass management for the subwoofer. The subwoofer's setting depends upon how you programmed the front left and right speakers.

- If you set the front speakers to a numeric crossover frequency, the subwoofer setting will be LFE, and you won't be able to change it.

All low-frequency information will always be sent to the subwoofer.

If you don't have a subwoofer, we recommend that you either upgrade to full-range speakers or add a subwoofer to your systemat the earliest opportunity.

- If you set the front speakers to LARGE, you may select from two possible settings for the subwoofer.
  - ■ L/R+LFE: This setting sends all low-frequency information to the subwoofer, including both information that would normally be played through the front left and right speakers and the special low-frequency effects (LFE) channel information.
  - ■ LFE: This setting plays low-frequency information contained in the left and right program channels to the front speakers, and directs only the LFE channel information to the subwoofer.

NOTE: The Speaker/Channel Indicators on the front panel of the receiver (see Figure on page 33) will display the speaker size settings as follows.
For each speaker configured numerically, a single box will appear in the position for that speaker. For each speaker configured as LARGE, a double box will appear in its position. If a speaker is configured as OFF, no box will appear. The subwoofer will be indicated by a single box, or no box if no subwoofer has been configured. The letters inside the boxes appear when a digital signal is being received that has that channel discretely encoded. The letters flash when the signal is not present, such as when a DVD is paused. A line will connect the SBL and SBR boxes when a 6.1-channel signal is detected, indicating that the same signal is playing through both speakers.

Adjust Speaker Distance Menu

As explained above in Step Two – Measure Speaker Distances, sometimes the speakers are placed at different distances from the listening-position, which can muddy the sound, as sounds are heard earlier or later than desired.

Even if all of your speakers are placed the same distance from the listening position, do not skip this menu.

On the Manual Speaker Setup menu, move the cursor to the Distance line and press the **OK** Button to display the Adjust Speaker Distance menu. See Figure 12.



Figure 12 – Adjust Speaker Distance Menu

This menu requires you to enter the distance from each speaker to the listening position, which you measured in Step Two – Measure Speaker Distances and noted in Table A3 in the appendix.

The default unit of measurement is feet. If you wish to change the unit to meters, press the Back/Exit Button until you return to the main AVR menu. Scroll down to the System line, and select it to view the System Settings menu. Scroll down this menu to the General AVR Settings section, and select the Unit of Measure line. Press the **OK** Button to change the setting from Feet to Meters.

Use the ▲/▼ Buttons to move the cursor to the Front Left line, press the OK Button then use the ◀/▶ Buttons to change the measurement as needed. The values vary between 0 and 9 meters, with a default of 3 meters for all speakers. Use the ◀/▶ Buttons to move to each speaker in turn – Center, Front Right, Surround Right, Surround Back Right, Surround Back Left, Surround Left and Subwoofer, if present in your system.

NOTE: When the multiroom system is in use, the surround back channels are automatically assigned to the multiroom system, as mentioned earlier. You will not be able to adjust the delay settings for these channels, and the cursor will skip past them.

Step Four – Setting Channel Output Levels Manually

For a conventional 2-channel receiver, the balance control enables the user to control the stereo imaging by adjusting the relative loudness of the left and right channels, as heard at the listening position.

With up to seven main channels plus a subwoofer, imaging becomes both more critical and more complex. Unlike the rotary balance control, the goal of the AVR 355/AVR 255's channel output adjustment process is to examine the output level of each channel independently and ensure that each is heard at the listening position with equal loudness.

If you followed the instructions in the Initial Setup section, then you let EzSet/EQ handle this critical task for you, simply and automatically.

However, if you prefer to make these adjustments manually, the AVR 355/AVR 255's Adjust Speaker Levels menu allows you to do so, either using the system's test tone or while playing source material. In addition, this is the only method for adjusting the level of the subwoofer.

You may use a handheld SPL meter (available at most electronics stores) set to the C-Weighting, Slow scale.

1. Make sure all speakers have been connected correctly.
2. Adjust the number of speakers, crossover distance and submode for each speaker in your system as described in Step Three.
3. If you are using a handheld SPL meter with source material, such as a test disc or another audio selection, play it now and adjust the AVR's master volume control until the meter measures 75dB.
4. There are several methods of adjusting the channel output levels, using either the test tone or source materials. In all cases, you may measure the channel levels in one of two ways:
   a) By ear. Try to adjust the levels so that all channels sound equally loud.
   b) Using a handheld SPL meter set to the C-Weighting, Slow scale. Try to adjust each channel so that the meter reads 75dB.

The best method of setting the output levels is by running EzSet/EQ, as described in the Initial Setup section. If any finer adjustments are desired, we recommend using the menu system to make the adjustments while playing the AVR's built-in test tone and measuring the output using an SPL meter. Less effective would be to measure the output by ear. Press the AVR Button to display the menu system, and then navigate to the Speaker Setup line. Press the OK Button to display the Speaker Setup menu. Select Manual Speaker Setup, press the OK Button, and then navigate to the Level Adjust line. Press the OK Button to display the Adjust Speaker Levels menu. See Figure 13.



Figure 13 – Adjust Speaker Levels Menu

All of the speaker channels will appear with their current level settings.

Reset Levels: If you wish to start by resetting all of the levels to their factory defaults of 0dB, scroll down to this line and press the OK Button. The levels will be reset.

If you are using an external source to set your output levels, simply navigate to each channel, press the **OK** Button and use the ◀/▶ Buttons to adjust the level as desired between –10dB and +10dB. All channels default to 0dB.

If you would like to set your levels using the AVR 355/AVR 255's internal test tone, adjust the TEST TONE line as follows.

Test Tone: This line determines whether the test tone is active. To begin the process of setting the levels, press the OK Button repeatedly to select the OFF, AUTO or MANUAL setting. Any time you manually move the cursor out of the channel listings area of the screen, this setting will automatically change to OFF, stopping the test tone.

When this setting reads AUTO, the test tone will automatically circulate to all channels, pausing for a few moments at each channel and then moving to the next channel several seconds later, as indicated by the highlight bar. You may adjust the level for any channel when the test tone is paused there by using the ◀/▶ Buttons. You may also use the ▲/▼ Buttons at any time to move the cursor to another line, and the test tone will follow the cursor.

When this setting reads MANUAL, the test tone will not move to the next channel until you use the ▲/▼ Buttons to move it.

NOTE: Setting the channel levels while one surround mode is active does not carry over to other mode groups. We recommend that after you have set the levels satisfactorily in one mode, you note the results and change to other surround modes. For those modes that don't reflect your level settings, you may either copy the settings you obtained (as a short cut), or redo the procedure to determine the correct settings for those surround modes.

When you have finished adjusting the speaker levels, select the SAVE option so that the settings will not be lost. Record the level settings in Table A3 in the appendix for future reference.

Surround Mode Chart

MODE	FEATURES
DOLBY DIGITAL PLUS	An enhanced version of Dolby Digital encoded more efficiently, Dolby Digital Plus has the capacity for additional discrete channels and for streaming audio from the internet, all with enhanced audio quality. Source material may be delivered via HDMI, or decoded to Dolby Digitaland transmitted via S/P-DIF coaxial or optical digital audio.
DOLBY TRUE HD	Dolby True HD is an expansion of MLP Lossless™ audio, the same format used on DVD Audio discs. Dolby TrueHD adds the features found in Dolby Digital, such as night mode settings, while delivering fully lossless audio that is a true reproduction of the studio master recording.
DOLBY DIGITAL	Available only with digital input sources encoded with Dolby Digital data. It provides up to five separate main audio channels and a special dedicated Low Frequency Effects channel.
DOLBY DIGITAL EX	Available when the receiver is configured for 6.1/7.1 channel operation, Dolby Digital EX is the latest version of Dolby Digital. When used with movies or other programs that have special encoding, Dolby Digital EX reproduces specially encoded soundtracks so that a full 6.1/7.1 soundfield is available. When the receiver is set for 6.1/7.1 operation and a Dolby Digital signal is present, the EX mode is automatically selected. Even if specific EX encoding is not available to provide the additional channel, the special algorithms will derive a 6.1/7.1 output.
DTS-HD	DTS-HD is a new high-definition audio format that complements the high-definition video found on HD-DVD and Blu-ray Discs. It is transmitted using a DTS core with high-resolution extensions. Even when only DTS 5.1 surround sound is desired (or available, if the multizone system is in use), the higher capacity of high-resolution discs serves up DTS at twice the bit rate used on DVD-Video discs.
DTS-HD MASTER AUDIO	DTS-HD Master Audio delivers bit-for-bit reproductions of the studio master recording in up to 7.1 channels, for an incredibly accurate performance.
DTS 5.1	When the speaker configuration is set for 5.1-channel operation, the DTS 5.1 mode is available when DVD, audio-only music or laserdiscs encoded with DTS data are played. DTS 5.1 provides up to five separate main audio channels and a special dedicated low-frequency channel.
DTS-ES 6.1 Matrix DTS-ES 6.1 Discrete	When the speaker configuration is set for 6.1/7.1 operation, playback of a DTS-encoded program source will automatically trigger the selection of one of the two DTS-ES modes. Newer discs with special DTS-ES discrete encoding will be decoded to provide six discrete, full-bandwidth channels plus a separate low-frequency channel. All other DTS discs will be decoded using the DTS-ES Matrix mode, which creates a 6.1-channel sound field from the original 5.1-channel soundtrack.
DOLBY PRO LOGIC II MOVIE MUSIC DOLBY PRO LOGIC GAME	Dolby Pro Logic II is the latest version of Dolby Laboratory's benchmark surround technology that decodes full-range, discrete left, center right, right surround and left surround channels from matrix surround encoded programs and conventional stereo sources when an analog input or a digital input with PCM or Dolby Digital 2.0 recordings is in use. The Dolby Pro Logic II Movie mode is optimized for movie soundtracks that are recorded with matrix surround, by creating separate center, rear left and rear right signals. while the Pro Logic II Music mode should be used with musical selections that are recorded with matrix surround or even with normal stereo mode, creating separate rear left and rear right signals in any case. The Pro Logic II mode creates compelling five-channel surround sound from conventional stereo recordings. Game mode ensures that special effects are routed to the surround channels, while delivering their full impact using the subwoofer, thus fully immersing the game player in the universe of the video game.
DOLBY PRO LOGIC IIx MUSIC MOVIE GAME	Dolby Pro Logic IIx is the latest extension of Dolby Pro Logic II technology that creates a discrete 6.1 and 7.1 sound field from matrix surround or two-channel stereo sources in systems configured for surround back speakers. Movie, Music and Game versions of Pro Logic IIx are available. Game mode ensures that special effects are routed to the surround channels, while delivering their full impact using the subwoofer, thus fully immersing the game player in the universe of the video game.
Logic 7 Cinema Logic 7 Music Logic 7 Enhance	Exclusive to Harman Kardon for AV receivers, Logic 7 is an advanced mode that extracts the maximum surround information from either surround-encoded programs or conventional stereo material. Depending on the number of speakers in use and the selection made in the SURROUND SELECT menu, the "5.1" versions of Logic 7 modes are available when the 5.1 option is chosen, while the "7.1" versions of Logic 7 produce a full sound field presentation, including back surround speakers when the "6.1/7.1" option is chosen. The Logic 7 C (or Cinema) mode should be used with any source that contains Dolby Surround or similar matrix encoding. Logic 7 C delivers increased center-channel intelligibility, and more accurate placement of sounds with fades and pans that are much smoother and more realistic than with former decoding techniques. The Logic 7 M or Music mode should be used with analog or PCM stereo sources. Logic 7 M enhances the listening experience by presenting a wider front soundstage and greater rear ambience. Both Logic 7 modes also direct low-frequency information to the subwoofer (if installed and configured) to deliver maximum bass impact. The Logic 7 E (or Enhance) mode is an extension of the Logic 7 modes that is primarily used with musical programs and is available with the 5.1 surround mode option selected only. Logic 7 E adds additional bass enhancement that circulates low frequencies in the 40Hz to 120Hz range to the front and surround speakers to deliver a less localized soundstage that appears broader and wider than when the subwoofer is the sole source of bass energy.

Surround Mode Chart

MODE	FEATURES
DTS Neo:6 Cinema DTS Neo:6 Music	These two modes are available when any analog source is playing to create a six-channel surround presentation from conventional Matrix-encoded and traditional Stereo sources. Select the Cinema version of Neo:6 when a program with any type of analog Matrix surround encoding is present. Select the Music version of Neo:6 for optimal processing when a nonencoded, two-channel stereo program is being played. When selecting a DTS Neo:6 Cinema mode, a 3-, 5- or 6-channel configuration may be available, depending on the number of speakers in your system. Use 3-channel mode when only a front left and right and a center speaker are present; surround-channel information will be mixed into these speakers. The 6-channel mode will only be available if you have configured your surround back speakers as active.
DTS 96/24	DTS 96/24 is a high-resolution format that uses a 96kHz sampling rate with 24 bits to produce extended information that improves the harmonics of the source material. The AVR is capable of automatically detecting and decoding DTS 96/24 materials and delivering them as the artist intended.
Dolby Virtual Speaker Reference Wide	Dolby Virtual Speaker technology uses a next-generation advanced algorithm to reproduce the dynamics and surround sound effects of a precisely placed 5.1-channel speaker system using only front left and right speakers. In the Reference Mode, the apparent width of the sound across the front image is defined by the distance between the two speakers. The Wide Mode provides a wider, more spacious front image when the two speakers areclose together.
5-Channel Stereo 7-Channel Stereo	This mode takes advantage of multiple speakers to place a stereo signal at both the front and back of a room. Depending on whether the AVR has been configured for either 5.1 or 6.1/7.1 operation, one of these modes, but not both, is available at any time. Ideal for playing music in situations such as a party, this mode places the same signal at the front-left and surround-left, and at the front-right and surround-right speakers. The center channel is fed a summed mono mix of the in-phase material of the left and right channels.
Surround Off (Stereo) Surround Off (Bypass) DSP Surround Off	These modes turn off all surround processing and present the pure left- and right-channel presentation of two-channel stereo programs. The Surround Off (Bypass) mode may only be used with analog source inputs, as it preserves the analog format of the audio signal for its entire path of travel through the receiver to the speaker and subwoofer outputs, bypassing all digital processing. Digital bass management is not available in Surround Off mode. The DSP Surround Off mode can be used with either an analog or digital input, as the signal undergoes digital bass management to optimize the distribution of the low frequencies between the main speakers and a subwoofer.
Dolby Headphone DH	Dolby Headphone enables ordinary stereo headphones to portray the sound of a five-speaker surround-playback system.

Basic Operation

Once you have completed the setup and configuration of the AVR, it is simple to operate and enjoy. The following instructions should be followed for you to maximize your enjoyment of your new receiver:

Turning the AVR On or Off

• When using the AVR for the first time, you must press the **Main Power Switch** 43 on the rear panel to turn the unit on. This places the unit in Standby mode, as indicated by the amber color of the **Power Indicator** 3. Once the unit is in Standby, you may begin a listening session by pressing the **System Power Control** 2 or on the front panel or the **AVR Power ON Button** on the remote Ⓐ. Note that the **Power Indicator** 3 turns white. This will turn the unit on and return it to the input source that was last used. The unit may also be turned on from Standby by pressing any of the **Source Selector** buttons on the remote Ⓒ, except the "Bridge" Button on the AVR 355 remote.

To turn the unit off at the end of a listening session, simply press the **System Power Control** 2 on the front panel or the **AVR Power Off Button** Ⓑ on the remote. Power will be shut off to any equipment plugged into the front panel **Switched AC Outlets** 17 and the **Power Indicator** 3 will turn amber.

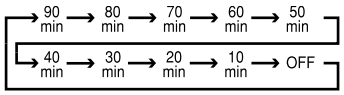
When the remote is used to turn the unit "off" it is actually placing the system in a Standby mode, as indicated by the amber color of the **Power Indicator** 3.

When you will be away from home for an extended period of time it is always a good idea to completely turn the unit off with the rear panel **Main Power Switch** 43.

NOTE: All preset memories may be lost if the unit is left turned off with the **Main Power Switch** 43 for more than two weeks.

Using the Sleep Timer

• To program the AVR for automatic turn-off, press the **Sleep Button** Ⓖ on the remote. Each press of the button will increase the time before shut down in the following sequence:



The sleep time will be displayed in the **Main Information Display** 13 and it will count down until the time has elapsed.

When the programmed sleep time has elapsed, the unit will automatically turn off (to Standby mode). Note that the front panel display will dim to one half brightness when the Sleep function is programmed. To cancel the Sleep function, press and hold the **Sleep Button** Ⓖ until the information display returns to normal brightness and the Sleep indicator numbers disappear and the words SLEEP OFF appear in the **Main Information Display** 13.

Mute Function

To temporarily mute all speakers and the headphones, press the MuteButton on the remote Ⓡ. Any recording in progress will not be affected. The MUTE message will appear in the display as a reminder. To restore normal audio, either press the Mute Button again, or adjust the volume. Turning off the AVR will also end muting.

Audio Effects

Depending on the specific characteristics of your listening room, you may wish to tweak some of the audio settings, such as tone controls, to improve performance. Access these settings from the Audio Effects Button 10Ⓓ, as described in the Advanced Functions section.

It is not necessary to adjust the Audio Effects settings to enjoy your new AVR. We recommend leaving the settings at their default values until you are more familiar with your system.

Video Modes

The settings in the Video Modes menu are used to fine-tune the picture if necessary after making all adjustments on the video display. It is recommended that you leave the settings at their defaults. See the Advanced Functions section for detailed information.

Source Selection

For direct access to any source, press its Source Selector Button Ⓒ on the remote control. Alternatively, Sources can be selected from the Source Selection Menu, available by pressing the AVR Settings Button Ⓨ on the remote, followed by the OK Button Ⓧ. The list showing available inputs slides in from the right. Simply scroll up and down to the desired input, then press OK on the remote.

• The input source may also be changed by pressing the front-panel **Source List** Button 12. This opens the on-screen Source Selection Menu with the slide-in Source List already open. If you are not using your TV for on-screen reference, use the Front Panel Information Display which shows the information you need. Scroll up and down with the ▲▼ Buttons 5, select the desired Input by pressing the **OK** Button 6 and exit the Source Selection function by pressing the **Source List** Button 12 again.

• The front-panel **Video Inputs** 19, **Optical Digital Input** 10 or the **Coaxial Digital Input** 18 may be used to connect a device such as a video game or camcorder to your home entertainment system on a temporary basis.

• As the input source is changed, the new input name will appear momentarily as on-screen information in the video display. The input name will also appear in the **Main Information Display** 13.

• (AVR 355 only) When The Bridge Digital Media Player (DMP) source is selected, if a compatible Apple iPod device is inserted in an optional Harman Kardon The Bridge that is connected to The Bridge **DMP Connector** 9 on the rear panel, function messages will appear on any video display connected to the AVR, and the remote control may be used to navigate the iPod and access many of its functions. The function messages will also appear in the front-panel display, and the iPod's battery may be charged. See the owner's guides for The Bridge and your iPod for more information.

Video Input Selection

When a source is selected, the AVR switches to a Video Input that has either been assigned to that Source by you, or to the default Video Input if you have not assigned any. All inputs except Radio are combined Audio and Video Inputs, functioning as audio-only inputs when no video signal is present. Refer to the Setup section of this manual for explanation of assigning video inputs to each source.

VIDEO TROUBLESHOOTING TIPS:
If a video source is playing and there is no picture:

- Check that you have selected the source to which the video input was assigned.
- Check the wires for a loose or incorrect connection.
- Check that you have selected the correct video input on the display device (TV).
- Try pressing the Resolution Button on the front panel to check that the correct video output resolution is selected and select the proper resolution for your screen.

Additional tips for systems using HDMI:

- Turn off all devices (including the TV, AVR and any source components).
- Unplug the HDMI cables starting with the cable between the TV and AVR, and continuing with the cables between the AVR and each source device.
- Carefully reconnect the cables from the source devices to the AVR, and connect the cable from the AVR to the TV last.
- Turn on the devices in this order: TV, then AVR, then source devices.

HDMI-equipped multichannel disc player:

• Connect the player's HDMI output to one of the AVR's HDMI Inputs. No other connections are necessary.

• Assign the HDMI Input to both the Audio and Video Input From Source settings in the Source Info menu.

HDMI-equipped multichannel disc player that does not output multichannel audio via HDMI:

• Connect the player's HDMI output and its multichannel analog audio outputs to one of the AVR's HDMI Inputs and to the AVR's 6-/8-Channel Analog Audio Inputs.

• Assign the HDMI Input to both the Audio and Video Input From Source settings in the Source Info menu.

• Assign the 6-/8-Channel Analog Audio Inputs to the Audio Auto Polling setting in the Source Info menu.

• When listening to DVD-Video discs, CDs or other materials outputting standard-definition digital audio, do nothing, as long as the HDMI Input is assigned to the Audio Input From Source setting.

• When listening to high-resolution multichannel discs, the AVR's auto polling feature will automatically switch to the multichannel analog audio inputs.

Multichannel disc player without HDMI output, or when video display has no HDMI input:

• Connect the player's component video outputs to one set of Component Video Inputs on the AVR. Depending on the capabilities of the player and your video display, you may need to use a composite or S-video connection instead.

• Connect the player's digital audio output to a corresponding available digital audio input on the AVR.

• Connect the player's multichannel audio outputs to the AVR's 6-/8- Channel Analog Audio Inputs.

• Assign the correct audio and video inputs to the Audio and Video Input From Source Settings in the Source Info menu.

• Assign the 6-/8-Channel Analog Audio Inputs to the Audio Auto Polling setting in the Source Info menu.

• When listening to DVD-Video discs, CDs or other materials outputting standard-definition digital audio, do nothing, as long as the correct digital audio input is assigned to the Audio Input From Source setting.

• When listening to high-resolution multichannel discs, the AVR's auto polling feature will automatically switch to the multichannel analog audio inputs.

NOTE: The 6-/8-Channel Inputs pass the incoming signals directly to the volume control, without digitizing or processing them. Configure the bass management settings (i.e., speaker size, delay and output level) on your source device to match the settings programmed using EzSet/EQ, which may be viewed using the Speakers Setup menu (see Advanced Functions section). Consult the owner's guide for your multichannel player for more information.

6-Channel/8-Channel Direct Input

The 6-/8-Channel Analog Audio Inputs are used when playing certain multichannel discs, such as DVD-Audio, HD-DVD, SACD and Blu-ray Discs, on a player that decodes the audio and outputs it via its multichannel analog audio outputs but not via its HDMI output.

Controls and Use of Headphones

• Adjust the volume to a comfortable level using the front panel **Volume Control** 1 or remote **Volume Up/Down** P buttons.

• To temporarily silence all speaker outputs press the **Mute** button R on the Remote Control. This will interrupt the output to all speakers and the headphone jack, but it will not affect any recording or dubbing that may be in progress. When the system is muted, the word MUTE will appear in the **Main Information Display** 13. Press the **Mute** button R again to return to normal operation.

• For private listening, plug the 6.3 mm stereo phone plug from a pair of stereo headphones into the front panel **Headphone Jack** 4. Note that when the headphone's plug is connected, the word DOLBY H:DH appears in the **Main Information Display** 13 and all speakers will be silenced. When the headphone plug is removed, the audio feed to the speakers will be restored.

• When the headphones are in use, you may take advantage of the Dolby Headphone modes to bring added spaciousness to headphone listening. Press the **Surround Mode** Button on the front panel 15 to switch between Dolby Headphone and Bypass to select the one that you prefer.

Surround Mode Selection

One of the most important features of the AVR 255/AVR 355 is its ability to reproduce a full multichannel surround sound field from digital sources, analog matrix surround encoded programs and standard stereo or even mono programs.

Selection of a surround mode is based on personal taste, as well as the type of program source material being used. For example, CDs, motion pictures or TV programs bearing the logo of one of the major surround-encoding processes, such as Dolby Surround should be played in either the Dolby Pro Logic II or IIx Movie (with movies) or Music (with music) surround mode, with any DTS NEO:6 mode or with Harman Kardon´s exclusive Logic 7 Movie Mode, to create a full range 5.1 channel or (with Logic 7 and DTS NEO:6) even 7.1 channel surround signal from surround encoded programs, with a stereophonic left and right rear signal, just as it was recorded

Note that when Dolby Digital 2.0 signals (e.g. "D.D. 2.0" tracks from DVD), that are encoded with Dolby Pro Logic information, are received via any digital input, the Dolby Pro Logic II Movie mode will be selected automatically (in addition to the Dolby Digital mode) and will decode a full range 5.1 channel surround sound even from those recordings.

To create wide, enveloping sound field environments and defined pans and flyovers with all analog stereo recordings select the Dolby Pro Logic II Music or Emulation mode or Harman Kardon's exclusive Logic 7 Music mode for a dramatic improvement in comparison to the Dolby Pro Logic (I) mode of former times.

NOTE: Once a program has been encoded with matrix surround information, it retains the surround information as long as the program is broadcast in stereo. Thus, movies with surround sound may be decoded via any of the analog surround modes such as Pro Logic II or IIx Cinema, Logic 7 Cinema or DTS Neo:6 Cinema, when they are broadcast via conventional TV stations, cable, pay-TV and satellite transmission. In addition, a growing number of made-for-television programs, sports broadcasts, radio dramas and music CDs are also recorded in surround sound. You may view a list of these programs at the Dolby Laboratories Web site at www.dolby.com

Even when a program is not listed as carrying intentional surround information, you may find that the Dolby Pro Logic II or IIx Music, DTS NEO:6 Music or Logic 7 Music or Enhanced modes often deliver enveloping surround presentations through the use of the natural surround information present in all stereo recordings.

However, for stereo programs without any surround information the 5/7CH Stereo modes should be tried (effective particularly with old "extreme" stereo recordings). And when you use only two front channel speakers you should select any of the Dolby Virtual Speaker surround modes, delivering a virtually three dimensional sound space with two speakers only.

Surround modes are selected using either the front panel controls or the remote. To select a new surround mode from the front panel, first press the **Surround Mode** Button 15 S to enter the Surround Modes Menu. Then use the ▲▼ Buttons 5 F to select the signal type that you want to modify and confirm with the OK Button to open the list of available Surround Modes for this signal type. Again select the desired Surround Mode and confirm with the OK Button. Press the **Back/Exit** Button 16 O to exit the menu.

Note that the Dolby Digital or DTS modes may only be selected when a digital input is in use. In addition, when a digital source is present, the AVR will automatically select and switch to the correct mode (Dolby Digital or DTS), regardless of the mode that has been previously selected. For more information on selecting digital sources, see the following section of this manual.

When the 6-Channel/8-Channel direct inputs are in use there is no surround processing, as these inputs take the analog output signals from an optional, external DVD-Audio or SACD player, or another source device and carry them straight through to the volume control.

To listen to a program in traditional two-channel stereo, using the front left and front right speakers only (plus the subwoofer, if installed and configured), select 2 CH Stereo in the Surround Modes Menu.

Digital Audio Signals

Digital audio signals offer the benefit of greater capacity, which allows recording artists to encode center and surround channel information directly into the signal. The result is improved sound quality and startling directionality, since each of these channels is reproduced discretely.

Alternatively, the artist may encode only two channels, but the digital signal allows for a higher sampling rate that delivers greater detail. High-resolution recordings usually sound extraordinarily distortion-free at all frequencies, but especially at high frequencies.

Multichannel digital recordings usually are found in the 5.1-, 6.1- or 7.1-channel formats. The channels included in a 5.1-channel recording are front left, front right, center, surround left, surround right and LFE. The LFE channel is denoted as ".1" to represent the fact that it is not full-range, being limited to the low frequencies.

6.1-Channel recordings add a single surround back channel, and 7.1-channel recordings add surround back left and surround back right channels to the 5.1-channel configuration. New formats, such as Dolby TrueHD, Dolby Digital Plus, DTS-HD and DTS-HD Master Audio, are available in 7.1-channel configurations. The AVR 355/AVR 255 is able to play the new audio formats, delivering a more exciting home theater experience.

NOTE: To use the 6.1- and 7.1-channel surround modes, the AVR 355/AVR 255 must be configured so that the Surround Back channels are enabled. See the Manual Setup section on page 24 for more information.

Digital formats include Dolby Digital 2.0 (two channels only), Dolby Digital 5.1, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, DTS-HD, DTS-HD Master Audio, DTS 5.1, DTS-ES (6.1 Matrix and Discrete), DTS 96/24, 2-channel PCM modes in 32kHz, 44.1kHz, 48kHz or 96kHz, and 5.1 or 7.1 multichannel PCM.

When a digital signal is received, the AVR 355/AVR 255 detects the encoding method and the number of channels. The number of channels encoded will appear briefly in the front-panel display as three numbers, separated by slashes (e.g., "3/2/.1").

The first number indicates the number of front channels in the signal:

"1" represents a monophonic recording, usually an older program that has been digitally remastered or, more rarely, a modern program for which the director has chosen a special effect.

"2" indicates the presence of the left and right channels, but no center channel.

"3" indicates that all three front channels (left, right and center) are present.

The second number indicates whether any surround channels are present:

"0" indicates that no surround information is present.

"1" indicates that a matrixed surround signal is present.

"2" indicates discrete left and right surround channels.

"3" is used with DTS-ES bitstreams to represent the presence of the discrete surround back channel in addition to the side surround left and right channels.

"4" is used with 7.1-channel digital formats, including Dolby TrueHD, Dolby Digital Plus, DTS-HD and DTS-HD Master Audio, to indicate the presence of two discrete side surround channels and two discrete back surround channels.

The third number is used for the LFE channel:

"0" indicates no LFE channel.

".1" indicates that an LFE channel is present.

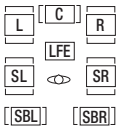
The 6.1-channel signals – Dolby Digital EX and DTS-ES Matrix and Discrete – each include a flag meant to signal the receiver to decode the surround back channel.

For Dolby Digital EX materials, the incoming bitstream will be displayed as 3/2/.1 EX-ON. For older discs, the display may show EX-OFF, but you will still be able to select the Dolby Digital EX mode manually.

For DTS-ES materials, the incoming bitstream will be displayed as 3/3/.1 ES-ON.

When a PCM signal is received, the PCM message, followed by the sampling rate of the signal (32kHz, 44.1kHz, 48kHz or 96kHz), will appear in the front-panel display.

In addition, the Speaker/Channel Input Indicators will indicate the number of channels discretely encoded in the signal by displaying a letter inside that channel's speaker box. A line will connect the SBL and SBR boxes when a 6.1-channel signal is detected, indicating that the same signal is playing through both speakers. The letters flash when no signal is present, such as when a DVD is paused.



Speaker/Channel Input Indicators

When only two channels – left and right – are present, the analog surround modes may be used to decode the signal into the remaining channels.



Figure 14 – Surround Modes

If you would prefer a different surround format than the native signal's digital encoding, press the Surround Modes Button to display the Surround Modes menu (see Figure 14).

The Auto Select option (the first line) uses the native signal's digital encoding, e.g. Dolby Digital or DTS. For two-channel materials, the AVR defaults to Logic 7 Movie mode. If you prefer a different surround processing mode, select the appropriate line from the menu: Virtual Surround, Stereo, Movie, Music or Video Game.

Each line is set to a default surround mode:

- **Virtual Surround:** Dolby Virtual Speaker Reference
- **Stereo:** 7-channel stereo
- **Movie:** Logic 7 Movie
- **Music:** Logic 7 Music
- **Video Game:** Logic 7 Game

You may change each line's setting to a different surround mode. The choice of new modes depends on the number of speakers in your system.

- **Virtual Surround:** Dolby Virtual Speaker Reference or Wide
- **Stereo:** 2-channel stereo, 5-channel stereo or 7-channel stereo
- **Movie:** Logic 7 Movie, DTS Neo 6:Cinema, Dolby Pro Logic II Movie, Dolby Pro Logic IIx Movie
- **Music:** Logic 7 Music, DTS Neo 6:Music, Dolby Pro Logic II Music, Dolby Pro Logic IIx Music
- **Video Game:** Logic 7 Game, Dolby Pro Logic II Game, Dolby Pro Logic IIx Game

When one of the Dolby Pro Logic II Music modes is selected, access to the Edit submenu becomes available. This submenu may be used to adjust special settings available only in Music mode: Center Width, Dimension and Panorama.

Once you have programmed the default surround mode for each type of program, simply select the line from the Surround Modes menu any time you wish to override the AVR's automatic surround mode selection. The AVR will use the same surround mode the next time the source input is selected.

NOTE: Dolby Digital 2.0 signals may also include a Dolby Surround flag indicating DS-ON or DS-OFF, depending on whether the 2-channel bitstream contains only stereo information, or a downmix of a multichannel program that can be decoded by the Dolby Pro Logic decoder in the AVR. By default, these signals are played in Dolby Pro Logic IIx Movie mode, but you may select another Dolby surround mode manually.

Surround Modes

Surround mode selection is dependent upon the format of the incoming audio signal, as well as personal taste. There is no harm in experimenting with all of the modes available with any given source material. Information about the Dolby and DTS modes is available on the companies' Web sites: www.dolby.com and www.dtsonline.com.

When in doubt, check the jacket of your DVD for more information on which surround modes are available on the disc. Usually, nonessential sections of the disc, such as trailers, extra materials or the disc menu, are only available in Dolby Digital 2.0 (2-channel) or PCM 2-channel mode. If the main title is playing and the letters in the Speaker/Channel Input Indicators are not lit for all speaker locations, look for an audio or language setup section in the disc's menu. Also, make sure your DVD player's audio output is set to the original bitstream rather than just PCM. Check the DVD player's output setting by stopping play of the disc and checking the DVD player's menu system.

Different surround modes may only be available with certain input signals or bitstream formats. For any incoming signal, only a limited number of surround modes are available. Although there is never a time when all of the AVR 355/ AVR 255's surround modes are available, there is usually a wide variety of modes available for a given input.

To select a surround mode, press the Surround Modes Button ⓈⒹ, select either Auto Select - AVR Selects Best Mode, or move the blue line to the other options: Virtual Surround, Stereo, Movie, Music and Video Game. Each of these 5 options permit several selections, accessed by pressing the **OK** Button (See Figure 14).

Dolby Surround Settings

Some additional settings are available for Dolby modes. Three settings are active only when the Dolby Pro Logic II or IIx Music modes have been selected. See Figure 15.



Figure 15 – Dolby Pro Logic II/IIx Music Mode Settings

Center Width: This setting affects how vocals sound through the three front speakers. A higher number (up to 7) focuses the vocal information tightly on the center channel. Lower numbers broaden the vocal soundstage across the three speakers. Use the ◀/▶ Buttons to change the setting.

Dimension: This setting affects the depth of the surround presentation, allowing you to "move" the sound toward the front or rear of the room. The setting of "0" is a neutral default. Setting "F-3" moves the sound mostly toward the front of the room, while setting "R-3" moves the sound mostly toward the rear. Use the ◀/▶ Buttons to change the setting.

Panorama: With the Panorama mode turned ON, some of the sound from the front speakers is moved to the surround speakers, creating an enveloping "wraparound" type of effect. Each press of the OK Button toggles the setting on or off.

Night Mode

Night mode is available with some Dolby Digital programs, if it has been encoded in the material. It compresses the peak sound levels, maintaining the intelligibility of the dialogue and quieter passages, while reducing the loudness of special effects and louder passages to avoid disturbing others. Night Mode is accessed from the Audio Effects menu. Press the Audio Effects Button and scroll down to the Night Mode line. Three levels of compression are available:

Off: At this setting, there is no compression, as the Night mode is deactivated.

Half: A mild compression is applied.

Full: More compression is applied.

Feel free to experiment and simply cycle through all of the available surround modes at any time; you cannot cause any problems for the AVR 355/ AVR 255 by doing so.

NOTE: To access 6.1- and 7.1-channel modes, such as Dolby Digital EX, DTS-ES, Logic 7 (7.1 modes), DTS Neo:6 (6.1 modes), and 7-channel Stereo, you must enable the surround back channels as explained in the Manual Setup section. You should not enable these channels if you don't have surround back speakers in your system.

Tape Recording

In normal operation, the audio or video source selected for listening through the AVR is sent to the record outputs. This means that any program you are watching or listening to may be recorded simply by placing machines connected to the outputs for **Analog Outputs** ❹ or **Video 1 Outputs** ❷❻ in the record mode.

When a digital audio recorder is connected to the **Coaxial Digital Output** ⓫, you are able to record the digital signal using a CD-R, MiniDisc or other digital recording system.

NOTES:

• The digital outputs are active only when a digital signal is present, and they do not convert an analog input to a digital signal, or change the format of the digital signal (e.g. Dolby Digital to PCM or vice versa). In additon, the digital recorder must be compatible with the output signal. For example, the PCM digital output from a CD player may be recorded on a CD-R or MiniDisc, but Dolby Digital or DTS signals may not.

• To make an analog recording from a digital source is possible, but only from a PCM source (not Dolby Digital or DTS) and correctly only with "Surround Off" mode (with any Surround mode only the L/R front signals will be fed to the record outputs).

Using The Bridge (AVR 355 only)

When Harman Kardon's The Bridge (optional) is connected and a compatible Apple® iPod® is docked in The Bridge, press the The Bridge DMP Selector Button Ⓒ on the Remote Control or the Source List 12 followed by the Up/Down Arrows to choose the iPod as the input source allowing playback of audio, video and still-image materials on your iPod through your high-quality audio/video system. Pressing the The Bridge **DMP Selector Button** Ⓒ will also activate the AVR remote's control codes for the iPod, and you may also use the front-panel controls to operate the iPod.

When The Bridge is properly connected and a compatible iPod is properly docked, the **Upper Display Line** 13 will read DMP/ CONNECTED. Once that message appears, use the remote or front-panel buttons to control the iPod. See the Function List Table on page 46 for a listing of the remote control buttons that have been programmed to control the iPod.



Figure 16 - On Screen Display, iPod playing



Figure 17 - On Screen Display, iPod Menu Selection

Complete details on operating an iPod using The Bridge and an AVR remote are furnished with The Bridge.

While a selection is playing, the song title, artist and album name, if available on the iPod, will scroll across the upper line in the front panel **Message Display** 13. The lower line will display the elapsed time of the track on the left, the play mode icon, and the time remaining on the right.

In addition, if a video display is connected to the AVR, a screen will appear briefly to display information about the iPod's status and the track. The top line will display the play mode icon, with the phrase "Now Playing" appearing to the right to remind you that you are viewing the status of the current track, as opposed to another menu screen. Below that the AVR displays the total number of tracks in the current play list on the right (all materials on the iPod are considered one of the play lists) with the number of the current track on the left. The song title, artist and album are displayed. At the bottom of the screen is a graphic bar indicating the current play position within the track, with the elapsed and remaining times appearing below the bar.

After a period of time the screen may disappear from view. The length of time is set using the Full-OSD Time Out setting in the System Settings menu (described in the Advanced Functions section). You may restore the Now Playing screen to view by pressing either of the ◀/▶ **Buttons** Ⓕ, and you may then navigate the menus as explained above.

NOTE: It is strongly recommended that you use a screen saver built into your video display to avoid possible damage from "burn-in" that may occur with plasma and many CRT displays when a still image, such as a menu screen, remains on display for an extended period of time.

Memory Backup

This product is equipped with a memory backup system that preserves tuner presets and system configuration information if the unit is turned off completely, accidentally unplugged or subjected to a power outage. This memory will last for approximately two weeks, after which time all information must be reentered.

Multiroom

The AVR is fully equipped to operate as the control center for a complete multiroom system that is capable of sending one source to a second zone in the house while separate source is listened to in the main room. In addition to providing for control over the selection of the remote source and its volume, the AVR offers a comprehensive range of options for powering the speakers in the second zone.

• Using the line-level **Zone 2 Outputs** ㉝, the selected source may be fed to optional, external power amplifiers that may be matched to the specifics of the installation (Zone 2 Outputs on AVR 355 only).

• When the main room system is configured for 5.1 operation, the Surround Back Left/Right amplifier channels may be used to power the remote zone so that no additional amplifiers are required.

• Using built-in A-BUS Ready technology, optional A-BUS modules may be connected to the AVR via a single Category Five wire, so that remote zone speakers may be powered directly from the module or keypad without the need for additional power, IR sensor or volume control wires to be run to the second zone. (Please note that the A-BUS functionality is featured in AVR 355 only).

In addition, the AVR includes a remote IR sensor input so that remote control commands from the Zone II remote included with the (AVR 355 only) or from the main remote when set to Zone 2 with the slide Switch Ⓩ may be transmitted to the unit, while standard IR input/output jacks allow the remote zone's commands to be sent to compatible IR-controlled source devices.

Installation

Although simple remote room systems may be installed by the average do-it-yourself hobbyist, the complexity of your multizone/multiroom system involves running wires inside of walls where the services of a specially trained installer may be required. Regardless of who does the work, please remember that local building codes may govern in-wall electrical work, including proper specification of any wiring used and the way in which it is connected. You are responsible for making certain that all Multiroom installation work is done properly and in compliance with all applicable codes and regulations.

For standard installations, follow the instructions shown on page 18-19 for the connection of speaker wire and IR remote wiring to the AVR.

For installations where the Surround Back Left/Right amplifier channels are used to power the remote zone, make certain that the system is configured for that type of operation, as shown below.

For installations where A-BUS modules are used, follow the instructions provided with the A-BUS remote modules or keypads.
Additional information will also be made available through the Harman Kardon Web Site at www.harmankardon.com.

Multiroom Setup

Once the audio and IR link connections have been made, the AVR needs to be configured for multiroom operation using the steps below. Press the **AVR** button Ⓨ to bring the main menu to the screen. Press the ▲/▼ **Button** Ⓕ until the `ZONE 2` menu line is highlighted in blue. Press the **OK** button Ⓧ to enter the menu.



Figure 18

When the `ZONE 2` menu appears, the blue cursor bar will be at the `Status: Off` line. Since this line is used to turn the system on and off, do not make an adjustment here unless you wish to turn the system on at this time. To turn the system on, press the **OK** Button Ⓧ once, to turn it off again, press once more. If you do not wish to turn the system on at this time or to proceed to the next step, press the ▼ Button Ⓕ once so that the blue cursor bar is highlighting the `Source` line.

At the `Source` line, press the press the **OK** Button to cause the Source List to slide in from the right. Use the Up/Down Button Ⓕ to select the source.. When the selection has been made, press the **OK Button** Ⓧ to confirm your choice, and continue to the `Volume` line by pressing the ▼ **Button** Ⓕ.

At the `Volume` line, press the ◀/▶ buttons Ⓕ or hold them pressed until the desired volume level for the multi-room system is entered. DO NOT use the regular volume control knobs for this setting.

Surround Amplifier Channel Assignment

The AVR is equipped with seven full-power amplifier channels to allow for complete 7.1-channel operation without the need for additional external amplifiers. However, in some installations you may wish to use the traditional 5.1-channel configuration for the main listening room, which allows the surround back left/right amplifier channels to be used to power speakers placed in a remote zone location.

If you wish to use the Surround Back channel amplifiers to power the remote zone, you must change a setting in the `MULTIROOM SETUP` menu. To make that change, first call up the menu system by pressing the **AVR Button** Ⓨ to bring the main menu (Figure 1) to the screen. Next, press the ▼ Button Ⓕ until the `Zone 2` menu line is highlighted in blue. Press the **OK Button** Ⓧ to enter the `Zone 2` menu.

The Surround Back Amps line is used to assign the surround back channels for multizone operation. Select the Zone 2 setting when multizone listening is desired. If the multizone system is not in use, this setting may be changed to Main Room to accommodate a 7.1-channel system. When the multiroom system is turned off, this line will always display the MAIN setting. When the multiroom system is turned on, this line will always display the MULTI setting, reflecting that the surround back channels are always assigned to the remote zone when the multiroom system is used.

Remember that once this setting is made you will not be able to take advantage of any of the 6.1/7.1- channel decoding or processing modes, and no Surround Back speakers must be selected in the speaker setup procedure outlined earlier. In addition the speakers used for the remote zone must be connected to the **Surround Back/Multiroom Speaker Outputs** ㉕. The volume for these speakers is set by the multiroom system, as explained above.

Multiroom Operation
To operate the multizone system using the remote, slide the Zone Select Switch at the bottom of the remote to the "2" position or, alternatively use the Zone 2 Remote Control (AVR 355 only). Press a Source Selector to select a source input for the remote zone.

Adjusting the volume or mute controls will only affect the volume in the remote zone. The on-screen menu functions will not be operative. The remote will operate source devices that have been programmed into it as explained in the Initial Setup section.

If the **Remote IR Output** jack ㉛ on the AVR is connected to an IR Input jack on compatible Harman Kardon audio components such as CD, DVD or cassette players, the transport functions of those machines may also be controlled using the **Transport Controls** ⒽⒺ on either remote control.

NOTE: When the tuner is selected as the source for Zone 2, any change to the frequency or preset will also change the station being listened to in the main room, if the tuner is in use there. Similarly, if someone in the main room changes the station, the change will also impact the remote room.

When Zone 2 is turned on, the input selected using the Zone 2 Menu will be fed to the **Zone 2 Output** jacks ㊳ on the rear panel as well as the **A-BUS Jack** ㊴, (AVR 355 only).
The volume will be as set in the same menu, although it may also be adjusted using an optional IR sensor and the Zone II remote in the remote location or on the optional audio power amplifier connected to the **Zone 2 Output** jacks ㊳.

Although changes to the input source or Zone 2 volume will normally be made using an IR sensor in the remote room that is connected to the AVR, it is also possible to change those settings from the main listening room. This is useful for situations where some or all of the remote rooms do not have an IR sensor, or to take control over the remote room without actually being in that room.

Once Zone 2 is turned on, it will remain on even if the AVR is placed in the Standby mode in the main room by pressing the **Power Off Button** Ⓑ or the **System Power Control** 2 on the front panel. To turn off the multiroom system from the main listening room, when the AVR is on, slide the **Zone Select Switch** Ⓩ on the Remote Control to Zone 2 (or, alternatively, use the Zone 2 Remote Control that comes with the AVR 355 only), and press the **Off Button** Ⓑ.

Even when the AVR is turned off (to Standby mode) and the multiroom system is turned off too, the multiroom system may be turned on at any time by pressing the **ON** Button Ⓐ while the Zone Select Button is set to Zone 2.

NOTE: Only analog audio sources are available to the multizone system. To hear digital devices, such as a CD player, in the remote zone, follow these steps:

1. In addition to a digital audio connection, connect the source device's analog audio outputs to any available analog audio inputs on the AVR, noting in Table AA in the appendix which set of inputs was used.
2. In the Setup Source menu, leave the Audio Source setting at the digital audio input. However, scroll down to the Zone 2 Audio setting and select the analog audio source used in step 1.

Video Adjustments

The AVR 255/AVR 355 includes sophisticated DCDi by Faroudja video processing that delivers enhanced video quality, even for older analog video source components, as well as upgraded on-screen displays. When upscaling video materials from a lower resolution to a higher one (the AVR 255/AVR 355 upscales to a maximum of 1080p), the processor is adding pixels to the original image. Sometimes when converting interlaced video (displays all odd rows then all even rows of the frame) to progressive-scan video (displays all rows at once) and increasing the resolution, the interpolation of new pixels can cause jagginess, or a staircase effect, at edge transitions, such as the stripes in an American flag. Faroudja engineers developed the DCDi (Directional Correlational Deinterlacing) algorithm to ensure that the additional pixels follow the edge, virtually eliminating the jagginess and enhancing upscaled images.

Thanks to the "Torino" video processing chip, on-screen graphics may be generated in high definition, and blended with the incoming video. This not only delivers crisp, clear information messages, it allows you to continue to watch a program while making system adjustments.

Video Modes

After you have adjusted the picture settings on your video display, additional adjustments may be made to the AVR, if necessary, to further improve the picture. Access these settings from the Video Modes menu. Press the Video Modes Button on the front panel or remote, and the screen shown in Figure 19 will appear. The menu may also be accessed from the Setup Source menu by pressing the Info Settings Button and selecting the Video Modes line.



Figure 19 – Video Modes Menu

Video Mode: The default setting of Processor Off passes the video signal through to the display without any processing. Select one of these processing options to optimize the picture for the current program by applying adjustments to the brightness, contrast, color and sharpness:

- **Sports:** For sporting events.
- **Nature:** For programs shot outdoors, in a natural setting.
- **Movie:** For movies and many television broadcasts.
- **Custom:** Allows manual adjustment of the picture settings. The Brightness, Contrast, Color and Sharpness settings will appear on screen as sliders with values ranging from 0 to 100. The default setting for each adjustment is 50. Use the ◀/▶ Buttons to change each setting's value.

Picture Adjust: Use this setting to change the aspect ratio of the displayed image.

When displaying widescreen (16:9) images on a full screen (4:3) device, letterbox format will be used, in which black bars may appear above and below the image (pillarboxing).

When displaying full screen images on a widescreen device, black or gray bars may appear to the left and right of the image.

Some displays, especially plasma and CRT monitors, may suffer from "burn-in" when the same image, such as the horizontal or vertical bars, is left on screen for a long period of time. Use this setting to adjust the picture so that it fills the display's screen. The options are:

- **Auto Fit:** The AVR automatically adjusts the image as required to fit the display's capabilities.
- **Height Fit:** Adjusts the image to eliminate any bars above or below it. Bars may remain at the sides.
- **Width Fit:** Adjusts the image to eliminate any bars on the sides. Bars may remain above and below the image.
- **Zoom 1x:** Displays the image as received from the source. If the image is in the 4:3 aspect ratio, on widescreen displays pillarbox format may be used. If the image is in the 16:9 aspect ratio, on full screen (4:3) displays letterbox format may be used.
- **Zoom 2x:** Stretches the image evenly to completely fill the screen. The outer portions of the image may be cropped.

Feel free to experiment with this setting for each source until you find a pleasing display format for each program.

Advanced Video Settings: Press the ▶ or **OK** Button to display the Advanced Video Modes submenu (see Figure 20).



Figure 20 – Advanced Video Modes Menu

Noise Reduction: To reduce signal noise, choose between LOW, MEDIUM, HIGH or OFF with the **OK** button ⊗. It is advisable to use as low a step as possible, as high levels of Noise Reduction may impair other aspects of the image.

MPEG Noise Reduction: This setting is designed to address two specific types of video distortion, mosquito noise and blocking artifacts. If you see haziness or shimmering around the edges of objects or the scrolling credits in a film, or if the image appears to "pixellate" into blocks, change the MPEG Noise Reduction setting from its default of Off to the Low, Medium or High setting to improve the picture.

Cross Color Suppressor: Turn this setting on to remove cross color artifacts, which can occur when high-frequency luminance (brightness) signals are misinterpreted as chroma (color) signals, which can cause unwanted flickering, flashing colors or rainbow patterns.

Film Mode Detect: While normally left off, turn this setting on to compensate for authoring errors in the process of converting film programs to video.

Return to main Video Modes Menu by pressing Back/Exit

Brightness: This control adjusts the level at which black is delivered. We recommend leaving it at its factory setting, although there is no harm in experimenting if you are using a test signal.

Contrast: This control adjusts the difference between black and white in the picture. We recommend leaving it at its factory setting, although there is no harm in experimenting if you are using a test signal.

Color: This control adjusts the hue of the colors in the picture, and may be set between 0 and 100. Select a setting in which people and objects on screen look natural. There is no "recommended" setting, and no harm in experimenting.

Sharpness: You may adjust the Sharpness setting from 0 to 100. We recommend leaving this setting as low as possible, as contrary to what you might expect, a less sharp image can appear clearer on screen. In addition, increasing the Sharpness requires additional video processing, which may lead to loss of sync with the audio or visual artifacts. However, there is no harm in experimenting with this setting.

Audio Effects

Depending on the specific characteristics of your listening room, you may wish to adjust some of the audio settings, such as tone controls, to improve performance. Access these settings from the Audio Effects menu. Press the Audio Effects Button on the front panel or remote, and the screen shown in Figure 21 will appear. The menu may also be accessed from the Setup Source menu by pressing the Info Settings Button and selecting the Audio Effects line.

NOTE: The settings in the Audio Effects menu affect each source independently.



Figure 21 – Audio Effects Menu

Tone Control: This setting determines whether the treble and bass controls are active. When it's off, the tone controls are "flat", with no changes. When it's on, the bass and treble frequencies are boosted or cut depending upon the tone-control settings. When an analog audio source is in use and the 2-Channel Stereo surround mode is selected, setting the Tone Control to "Off" places the unit in analog bypass mode, with no digital processing of the analog signal.

Treble: Boost or cut the high frequencies by up to 10dB by using the ◀/▶ Buttons to change the temperature bar setting. The default setting is 0dB, at the center of the temperature bar.

Bass: Boost or cut the low frequencies by up to 10dB by using the ◀/▶ Buttons to change the temperature bar setting. The default setting is 0dB, at the center of the temperature bar.

LFE Trim: lets you reduce the output to the separate subwoofer channel by up to 10dB in 1dB steps, if the general level to the sub set up in the Speaker Setup Menus seems too loud for a particular Source.

Night Mode: This setting is used with specially encoded Dolby Digital programs to compress the signal so that louder passages do not disturb others, while dialogue remains intelligible.

- **Off:** For normal listening.
- **Half:** Applies moderate compression.
- **Full**: Applies the most compression.

When you have finished making adjustments in the Audio Effects menu, press the Audio Effects Button or the Back/Exit Button to clear the screen.

Advanced Features

The AVR 255/AVR 355 is equipped with a number of advanced features that add extra flexibility to the unit's operation. While it is not necessary to use these features to operate the unit, they provide additional options that you may wish to use.

System Settings

The AVR 255/AVR 355 offers system settings that allow you to make the receiver easier to use rather than directly affecting performance. These settings may be accessed from the System Settings menu, which is selected by pressing the AVR Button and navigating to the System line. Press the OK Button to display the System Settings menu. See Figure 22.



Figure 22 – Systems Settings Screen

Front Panel Dimmer: Some people find the front-panel messages distracting while watching a movie. The AVR 255/AVR 355 allows you to dim the front-panel lighting or turn it off altogether. When the display is partly or fully dimmed, it will return to full brightness for five seconds whenever a command is entered, and then it will dim again. Select On 100% for full brightness, dim to 50% or 25% of full brightness or select Off to fully darken the display. The light inside the Volume Control will go out when the display is partly or fully dimmed, but the Power Indicator will always remain lit to remind you that the AVR is powered on.

General AVR Settings

Volume Units: Select whether volume is displayed in the conventional decibel scale or on a numeric scale from 0 to 100. When the decibel scale is used, 0dB is the maximum volume, with lower volumes measured as negative values.

Volume Default and **Volume Default Level:** These two settings are used together to program a volume level the AVR will always switch to when turned on. This feature avoids discomfort for listeners in case the last user turned the volume very high.

Turn Volume Default on, and then set the Volume Default Level to the desired turn-on volume.

Unit of Measure: This setting only affects the speaker-distance settings when performing Manual Speaker Setup. Select between meters and feet.

iPod Charging: (AVR 355 only). When docked in a Bridge2 Docking Station, plugged into the Bridge Connector ⑨ on the rear panel, you may select that your iPod is being charged all the time, or that no charging is taking place.

Language: Select the preferred language for the AVR's on-screen menus and displays: English, French, Spanish, German, Italian or Russian.

HDMI Audio to TV: This setting determines whether audio signals received through any of the HDMI Inputs are passed through the HDMI Output to the video display. In normal operation, leave this setting Off, as audio will be played through the AVR rather than the video display's built-in speakers. However, sometimes you may wish to use the TV by itself, without using the complete home theater system. For those occasions change this setting to On. You may always mute the TV's speakers when using the AVR for audio.

Resolution to Display: Select the highest resolution that your TV can show. If you use HDMI, resolution selection happens automatically. If you use analog signals, you must choose the proper resolution. Note: if you choose a resolution that is higher than your screen can show, the picture disappears. In this case, wait for approx. 10 seconds, as the AVR returns to the previous resolution if the new one is not confirmed within this time. Default resolution is 576i, which is the maximum that can be transmitted by the simplest video connection, Composite/CVBS.

Menu Appearance

OSD Transparency: This setting allows you to select whether video programs will be visible when the menu system is in use. Select Normal for a fully-transparent background, Medium for the menu background to be partially visible or Opaque to block the view of any video programs while the menus are on screen.

Volume Status Messages: When the AVR is turned on, the volume is adjusted or the source is changed, or if a change in the input signal is detected, a status message will be displayed on screen. Use this setting to select how long the message remains visible. The setting varies from 2 to 10 seconds, with a default of 3 seconds.

Menus: Some menu settings only remain in effect during the current listening session, including the settings in the Surround Modes, Video Modes and Audio Effects menus. This setting governs how long these menus will remain visible after your last adjustment, varying from 5 seconds to 5 minutes, or no time-out (the menu does not disappear until you close it), with a default of 5 seconds.

Setup and Slide-In Menus: This setting determines how long the setup menus (Main Menu, Speaker Setup Menu, Zone 2 Menu, all slide-in menus) remain visible after your last adjustment. Select a timeout period of 5, 10 or 15 (the default) minutes, or no timeout, which leaves the menus on screen until you manually clear them. We recommend setting some timeout period to avoid the possibility of burn-in damage to plasma or CRT displays.

Screen Saver: Use this setting to program a timeout period for no activity (with no menus displayed) before the AVR's built-in screen saver begins. Select a period of 5 (the default), 10 or 20 minutes, or turn off the screen saver. We recommend setting some timeout period to avoid the possibility of burn-in damage to plasma or CRT displays.

Default Surround Mode

In normal operation, when the AVR senses a Dolby Digital or DTS digital audio data stream, it will automatically switch the appropriate default surround mode, with the AVR responding to the data flags that are encoded on the DVD disc or in the digital video broadcast. In most cases, this is the correct mode, but you may have a particular preference for the mode you wish to hear when Dolby Digital or DTS is present. The AVR allows you to set the unit so that it will either respond to the default or switch to your desired mode.

If you wish to leave the default so that the mode choice encoded in the disc is always used, no further action is needed. Simply leave the setting at the factory default of ON.

To set the unit so that it responds to the last surround mode used when a Dolby Digital or DTS source is playing, press the ▲/▼ **Buttons** ⑭ so that the blue cursor bar is highlighting the `Default Surround Mode` line. Press the **OK Button** ⑯, followed by the ◀/▶ **Buttons** ⑮ ㊲ so that `OFF` appears, and the setting will change. Press the **OK Button** ⑯ again to confirm the new setting. The unit will now use the last mode, not the disc's default for the two digitally encoded data streams.

This setting does not apply to standard PCM digital inputs or to analog sources. In those cases, the unit will always apply the surround or processing mode that was last used for that input.

If you wish to make other adjustments, press the ▲/▼ **Buttons** ⑭ until the blue cursor bar is highlighting the desired setting. If you have no other adjustments to make, press the **OSD Button** ㉒ to exit the menu system.

To select the built-in tuner:

1. Press the Source List Button on the front panel and use the ▲/▼ Buttons to scroll through the source list. The last-used band (AM or FM) will be active.

2. Press the Radio Source Selector on the remote. Press this button again to switch bands (AM or FM). A screen similar to the one shown in Figure 23 will appear, with the band indicated in the middle of the screen.The "XM Radio" that appears as an option in the Source Menu can be disregarded, as it is used in the US version only. The Menu system skips over this option.



Figure 23 – FM Radio

Use the ▲/▼ Buttons to tune a station. The frequencies will be displayed in the front panel and graphically on screen.

The AVR defaults to automatic tuning, meaning each press of the ▲/▼ Buttons scans through all frequencies until a station with acceptable signal strength is found. To switch to manual tuning, in which each press of the ▲/▼ Buttons steps through a single frequency increment (0.05MHz for FM, or 9kHz for AM), press the Menu Button. The Mode line will be highlighted, and each press of the OK Button toggles between automatic and manual tuning modes as well as Stereo (in Automatic Mode) and Mono (in Manual Mode).

You may also enter the frequency of a radio station directly. In the Slide-In Menu opened by pressing the Menu Button Ⓜ with the unit in FM-Mode, select Direct Entry (appearing just above the preset channel listing) with the Arrow Buttons, then press **OK**. The Main Information Display now shows DIRECT IN as a slide-in information, and a * moves back and forth to indicate that the AVR is ready for Direct Entry of the frequency. You must begin entering numbers within 10 seconds. Otherwise, the AVR reverts to previous mode. Now press the frequency digits. If you begin with "**1**" to enter a station frequency in the 100-range, the first "**1**" is automatically registered as "**10**", after which you may enter the third main digit and the two decimal digits. Example: 96,50 is entered as it appears: Nine, Six, Five, Zero. 102,65 is entered like this: One, Two, Six, Five.

A total of 30 stations (AM and FM together) may be stored as presets. When the desired station has been tuned, press the OK Button, and two dashes will flash in the front-panel display. Use the Numeric Keys to enter the desired preset number, and confirm with the **OK** Button. If the preset number is higher than 9, press the **0-Button** on the Remote Ⓚ first to access two-digit numbers. If you do not press this button first, you can only enter single-digit numbers..

To tune a preset station, press the ◀/▶ Buttons or press the Menu Button to view the list of programmed presets and scroll to the desired selection. Press the OK Button to tune the station. You may also enter the preset number using the Numeric Keys. For presets 10 through 30, press the **Zero** Button Ⓚ first to show a blinking **0** in the Information Display, then enter the two digits. For example, enter preset 17 by pressing 0, then 1, then 7. If you want to enter another two-digit preset, you must press 0 again first.

RDS Operation

The AVR 255/AVR 355 is equipped with RDS (Radio Data System), which brings a wide range of information to FM radio. Now in use in many countries, RDS is a system for transmitting station call signs or network information, a description of station program type, text messages about the station or specifics of a musical selection, and the correct time.

As more FM stations become equipped with RDS capabilities, the AVR will serve as an easy-to-use center for both information and entertainment. This section will help you take maximum advantage of the RDS system.

RDS Tuning

When an FM station is tuned in and it contains RDS data, the AVR will automatically display the station's call sign or other program service in the **Main Information Display** 13 and on the tv screen if this is on.

RDS Display Options

The RDS system is capable of transmitting a wide variety of information in addition to the initial station call sign that appears when a station is first tuned. In normal RDS operation the display will indicate the station name, broadcast network or call letters. Pressing the **Play** Button Ⓔ on the Remote enables you to cycle through the various data types in the following sequence:

• The station's call letters (PS) (with some private stations other information too).

• The station's frequency (FREQ MODE), which is always shown on the TV On-Screen Display, is shown in the Main Information Display.

• The Program Type (PTY) as shown in the list below.

NOTE: Many stations do not transmit a specific PTY. The display will show NONE, when such a station is selected and PTY is active.

• A "text" message (Radiotext, RT) containing special information from the broadcast station. Note that this message may scroll across the display to permit messages longer than the eight positions in the display. Radiotext is not shown on the TV On-Screen Display.

• The current time of day (CT). Note that it may take up to two minutes for the time to appear, in that time the letters CT are shown in the information display when CT is selected. Please note that the accuracy of the time data is dependent on the radio station, not the AVR.

Some RDS stations may not include some of these additional features. If the data required for the selected mode is not being transmitted, the **Main Information Display** 23 will show a NO TYPE, NO TEXT or NO TIME message after the individual time out.

In any FM mode the RDS function requires a strong enough signal for proper operation.

Program Search (PTY)
An important feature of RDS is its capability of encoding broadcasts with Program Type (PTY) codes that indicate the type of material being broadcast. The following list shows the abbreviations used to indicate each PTY, along with an explanation of the PTY:

• NEWS: News
• AFFAIRS: Current Affairs
• INFO: Infomation
• SPORT: Sports
• EDUCATE: Educational
• DRAMA: Drama
• CULTURE: Culture
• SCIENCE: Sciencek
• VARIED: Varied Speech Programs
• POPM: Popular Music
• ROCKM: Rock Music
• M.O.R.M.: Middle-of-the-Road Music
• LIGHTM: Classical Music
• CLASSICS: Serious Classical Music
• OTHERM: Other Music
• WEATHER: Weather Information
• FINANCE: Financial Programs
• CHILDREN: Children's Programs
• SOCIAL A: Social Affairs Programs
• RELIGION: Religious Broadcasts
• PHONE IN: Phone-In Programs
• TRAVEL: Travel and Touring
• LEISURE: Leisure and Hobby
• JAZZ: Jazz Music
• COUNTRY: Country Music
• NATIONAL: National Music
• OLDIES: Oldies Music
• FOLK M: Folk Music
• DOCUMENT: Documentary Programs
• TEST: Emergency Test
• ALARM: Emergency Broadcast Information

You may search for a specific Program Type (PTY) by following these steps:

1. Press the **Play** button E until the current PTY is shown in the **Main Information Display** 13.

2. While the PTY is shown, press the CH/Page Up/Down I or the ◀/▶ Buttons F or hold them pressed to scroll through the list of available PTY types, as shown above starting with the PTY currently received.

3. Press either of the ▲/▼ Buttons F. The tuner begins to scan the FM band upwards or downwards for the first station that has RDS data that matches the desired selection, and acceptable signal strength for quality reception.

4. The tuner will make up to one complete scan of the entire FM band for the next station that matches the desired PTY type and has acceptable reception quality. If no such station is found, the display will read NONE for some seconds and the tuner will return to the last FM station in use before the search.

Programming the Remote

The AVR 255/AVR 355 is equipped with a powerful remote control that will control not only the receiver's functions, but also most popular brands of audio and video equipment, including CD players, TV sets, cable boxes, VCRs, satellite receivers and other home-theater equipment. Once the AVR's remote is programmed with the codes for the products you own, it is possible to eliminate most other remotes and replace them with the convenience of a single universal remote control.

Programming the Remote with Codes

As shipped from the factory, the remote is fully programmed for all AVR functions, as well as those of most Harman Kardon CD changers, DVD players, CD players and cassette decks as well as the navigation controls for the Apple iPod. In addition, by following one of the methods below, you may program the remote to operate a wide range of devices from other manufacturers.

Direct Code Entry
This method is the easiest way to program your remote to work with different products.

1. Use the tables in the separate setup-code guide to determine the three-digit code or codes that match both the product type (e.g., VCR, TV), and the specific brand name. If there is more than one number for a brand, make note of the different choices.

2. Turn on the unit you wish to program into the AVR remote.

3. Press and hold the **Input Selector** Ⓒ for the type of product to be entered (e.g., DVD, TV) more than 3 seconds, until it lights up, then release it. It is important that you begin the next step within 20 seconds.

4. If the unit you wish to program into the AVR remote has a remotable Power on/off function, follow these steps:

a. Point the AVR's remote towards the unit to be programmed, and enter the first three-digit code number using the **Numeric** buttons Ⓚ. If the unit being programmed turns off, the correct code has been entered. Press the **Input Selector** Ⓒ again, and note that the red light under the **Input Selector** will flash three times before going dark to confirm the entry.

b. If the product to be programmed does NOT turn off, continue to enter the three-digit code numbers until the equipment turns off. At this point, the correct code has been entered. Press the **Input Selector** Ⓒ again and note that the red light under the **Input Selector** will flash three times before going dark to confirm the entry.

5. If the Power function of the unit to be programmed cannot be remoted, follow these steps (max. 20 seconds after step 3 above, or else step 3 must be repeated first):

a. Enter the first three-digit code number using the **Numeric** buttons Ⓚ and press the **Input Selector** Ⓒ again. Press the remote button of any transport function remotable with the unit, e.g. **Pause** or **Play** ► Ⓔ. If the unit being programmed starts that function, the correct code has been entered.

b. If the unit does not start the function whose button was pressed, repeat steps 3 and 5a above with the next three-digit code number listed in the setup code table for that brand and product type, until the unit reacts properly on the transport function transmitted.

6. Try all of the functions on the remote to make certain that the product operates properly. Keep in mind that many manufacturers use a number of different combinations of codes, so it is a good idea to make certain that not only does the Power control work, but that the volume, channel and transport controls work as they should. If functions do not work properly, you may need to use a different remote code.

7. If the unit does not react to any code entered, if the code for your product does not appear in the tables in the separate setup-code guide, or if not all functions operate properly, try programming the remote with the Auto Search Method.

Auto-Search Method
If the unit you wish to include in the AVR's remote is not listed in the code tables in the separate setup-code guide or if the code does not seem to operate properly, you may wish to program the correct code using the Auto Search method that follows. Note that the Auto Search method works only with units whose Power functions can be remoted:

1. Turn on the product that you wish to include in the AVR remote.

2. Press and hold the **Input Selector** Ⓒ for the type of product to be entered (e.g., DVD, TV) more than 3 seconds, until it lights up, then release it. It is important that you begin the next step within 20 seconds.

3. To find out if the code for your unit is pre-programmed, point the AVR remote towards the unit to be programmed, and press and hold the ▲ button Ⓕ. Each press of the button sends the Power signal for one setup code number, and keeping the button down sends a series of codes from the remote's built-in data base, with each flash of the red light under the **Input Selector** Ⓒ indicating that a code has been sent. When the device to be programmed turns off,immediately release the ▲ button Ⓕ. Note that it may take one minute or more until the right code is found and the unit turns off.

4. When the ▲ button was not released in time after the unit turned off, the proper code will be "overrun". That's why a function test should be made: Turn the unit on again and, while the **Input Selector** Ⓒ still lights red, press the ▲ button Ⓕ once, then the ▼ button Ⓕ once too. When the unit turns off, the right code was found, when not, the code was "overrun". To re-find the correct code, while the **Input Selector** Ⓒ still lights red, press (not hold pressed) the ▼ button Ⓕ repeatedly to step backwards through the codes available and observe the reaction of the unit at each press. As soon as the unit turns off the correct code is found.

5. Press the **Input Selector** Ⓒ again, and note that the red light will flash three times before going dark to confirm the entry.

6. Try all of the functions on the remote to make certain that the product operates. Keep in mind that many manufacturers use a number of different combinations of codes, and it is a good idea to make certain that not only the Power control works, but the volume, channel and transport controls, as appropriate. If all functions do not work properly, you may need to Auto-Search for a different code, or enter a code via the Direct Code Entry method.

Code Readout

When the code has been entered using the Auto Search method, it is always a good idea to find out the exact code so that it may be easily reentered if necessary. You may also read the codes to verify which device has been programmed to a specific Control Selector button.

1. Press and hold the **Input Selector** Ⓒ for the device you wish to find the code for more than 3 seconds, until it lights up, then release it. Release the button and begin the next step within 20 seconds.

2. Press the **OK** button Ⓧ. The **Input Selector Button** Ⓒ will then blink green in a sequence that corresponds to the three-digit code, with a one-second pause between each digit. Count the number of blinks between each pause to determine the digit of the code. One blink is the number 1, two blinks is the number 2, and so forth. Note that a rapid "Flick" (which is shorter than a blink), is used to indicate a "0."

Example: One blink, followed by a one-second pause, followed by six blinks, followed by a one-second pause, followed by four blinks indicates that the code has been set to 164.

For future reference enter the Setup Codes for the equipment in your system here:

DVD _____ **CD** _____

VID1/VCR _____ **VID3/TV** _____

VID2/CBL/SAT _____

TAPE _____

VID4 _____

Learning Codes from a Remote (AVR 355 Remote only)

In addition to using codes from the remote's internal code library, the AVR 355's remote is able to "learn" codes from remotes that may not be in the code library. In addition, you may use this function to "learn over" the codes from a preprogrammed device to add functions not included in the preprogrammed codes. To learn or transfer codes from an IR remote to the AVR 355's remote, follow these steps:

1. Place the front of the original remote with the code being sent so that it is facing the **IR Transmitter Window** Ⓦ on the AVR 355 remote "head-to-head." The remotes should be between 2 and 4 cm apart.

2. Select the button on the remote that you wish to use as the device selector for the codes about to be entered. This must be any of the **Input Selectors** ❺ or the **AVR Selector** ❻. Note that when new codes are learned with the **AVR Selector** ❻, they may no longer control the AVR 355.

3. Press the **Input Selector** ⒸⓎ button under which you wish to learn one or more buttons. Now press the Learn Button (T) for 3 seconds. The Input Button that you pressed last lights up. It is important that you begin the next step within 25 seconds.

4. Press the button on the AVR 355 remote that you wish to program. Note that the Input Button blinks once.

Important Note: The following buttons are learnable: DEVICE POWER ON/OFF, 0~9, LAST, BACK/EXIT, MENU, UP, DOWN, LEFT, RIGHT, OK, DISC MENU, RED, GREEN, YELLOW, BLUE, CHANNEL UP/DOWN, VOLUME UP/DOWN, MUTE, PREVIOUS, NEXT, FF, REW, PLAY, STOP, RECORD (Total 37 keys). These buttons can be programmed differently in each DEVICE mode. If you try to select a non-learnable button, the Input Button blinks rapidly.

5. Place the two remotes facing each other at 2-4cm distance. Now press and hold the button on the original remote that you wish to "teach" into the AVR 355 remote. When the Input Button on the AVR 355 blinks 3 times, the code has been learned.

6. Repeat steps 4 though 5 for each button on the source remote that you wish to transfer to the AVR 355 remote.

7. Once all codes have been transferred from the original source remote to the AVR 355 remote, press the **Learn** button Ⓣ. The Input Button blinks 3 times and the light extinguishes to indicate that Learn mode is turned off.

8. Repeat Steps 1 through 7 for any additional remotes you wish to "teach" into the AVR 355 Remote.

Erasing Learned Codes

The AVR 355's remote allows you to remove or erase the code learned into a single button for a single device, to remove or erase all the codes that have been learned for a single device, or to erase all commands that have been learned to all devices.

To erase a single learned code from within a single device's settings, follow these steps:

1. Press and release the **Input Selector** ⒸⓎ within which the individual button to be erased has been programmed.

2. Press the **Learn** Button Ⓣ for 3 seconds. The Input Button pressed before lights up.

3. Press and release the **Input Selector** ⒸⓎ again for the device within which the individual button to be erased has been programmed.

4. Press the **7** button Ⓚ three times.

5. Press and release the individual button for which the code is to be erased. The Input Button selected blinks 3 times.

6. To erase other buttons within the same device, press them as noted in Step 5.

7. Press the **Learn** Button Ⓣ for 3 seconds. The Input Button pressed before lights up.

To erase all codes within a single device, follow these steps:

1. Press and release the **Input Selector** ⒸⓎ for which you wish to erase the codes.

2. When the red LED under the **Input Selector** turns red and the **Program/SPL Indicator** ❸ flashes amber, release the buttons.

3. Press and release the same **Input Selector** ⒸⓎ again for the device whose codes you wish to erase.

4. Press the **8** button Ⓚ three times.

5. Input Button selected blinks 3 times and extinguishes.

To erase all codes that have been programmed to all devices in the remote, follow these steps:

1. Press the **Learn** button Ⓣ for 3 seconds.

2. Press and release any **Input Selector** button ⒸⓎ.

3. Press the **9** button Ⓚ three times.

4. The Input Button selected blinks 3 times and extinguishes. All buttons in all modes are now reset to the original code set.

Activity Programming (Macros)

Activities enable you to easily repeat frequently used combinations of commands with the press of a single button on the AVR's remote control. Once programmed, an Activity will send out up to 19 different remote codes in a pre-determined sequential order enabling you to automate the process of turning on your system, changing devices, or other common tasks. The AVR's remote can store up to eleven separate activity command sequences, one that is associated with the **AVR Power On** button Ⓐ, and ten more that are accessed by pressing the **0-9** Buttons Ⓚ.

1. To start programming an activity, press the **Activity** button Ⓝ and one of the **0-9** buttons Ⓚ to be programmed or the **AVR Power On** button Ⓐ at the same time. Note that the latest selected **Device LED** will light red.

2. Enter the steps for the activity sequence by pressing the button for the actual command step. Although the activity may contain up to 19 steps, each button press, including those used to change devices, counts as a step. The **Device LED** will blink once to confirm each button press as you enter commands.

• Remember to press the appropriate **Input Selector** button Ⓒ before functions are changed to another device. This is also needed for the **AVR Selector** button Ⓨ itself, as long as it's not lit red and AVR functions shall be programmed.

3. When all the steps have been entered, press the **Activity** button Ⓝ again to enter the commands. The red light under the **Input Selector** ⒸⓎ will blink three times and then turn off.

Note: It can take up to 10 seconds to send out 19 commands from an Activity Button. Please continue to point the remote control at the device(s) until all the commands on the Activity Button have been sent out. This will ensure that all the commands are received by the device(s).

Example: Activity Button Programming.
To program Activity Button "2" to send the following commands: turn on the Audio receiver, turn on the TV, turn on a DVD, and turn on a Satellite receiver.

Press the Activity Button "2" and the ACTIVITY button, simultaneously.
Press the AVR device button(to change to the AVR mode)
Press the AVR POWER ON button(to turn on the Audio receiver)
Press the TV device button(to change to the TV mode)
Press the DEVICE POWER ON button(to turn on the TV)
Press the DVD device button(to change to the DVD mode)
Press the DEVICE POWER ON button(to turn on the DVD)
Press the SAT device button(to change to the SAT mode)
Press the DEVICE POWER ON button(to turn on the SAT receiver)
10. Press the ACTIVITY button.

After following these steps, each time you press the **Activity Button** Ⓝ, followed by pressing the "**2**" Button where the Activity is programmed,, the remote will send all Power On commands.

The "**2**" Button only sends the programmed Activity when the **Activity Button** Ⓝ is pressed first. Otherwise, Button "**2**" sends the normal, numerical 2.

Erasing Activity Buttons
Press the **Activity** button Ⓝ and the Activity Button (**0~9**, or AVR POWER ON) that you wish to program, simultaneously. The Device LED will light up.

Press the **Activity** button Ⓝ again. The Device LED blinks three times.

Note: Any previously stored commands on an Activity Button will be erased when new commands are stored on the same Activity Button.

Programmed Device Functions

Once the AVR's remote has been programmed for the codes of other devices, press the appropriate **Input Selector** Ⓒ to change the remote from control over the AVR to the additional product. When you press any of these buttons, it will briefly flash in red to indicate that you have changed the device being controlled.

When operating a device other than the AVR, the controls may not correspond exactly to the function printed on the remote or button. Some commands, such as the volume control, are the same as they are with the AVR. Other buttons will change their function so that they correspond to a secondary label on the remote. For example, the Sleep and Surround mode selector buttons also function as the Channel Up and Channel Down buttons when operating most TV sets, VCRs or Sat-Receivers.

For some products, however, the function of a particular button does not follow the command printed on the remote. In order to see which function a button controls, consult the Function List tables printed on page 46-50. To use those tables, first check the type of device being controlled (e.g., TV, VCR). Next, look at the remote control illustration belonging to the Function List. Note that each button has a number on it.

To find out what function a particular button has for a specific device, find the button number on the Function List and then look in the column for the device you are controlling. Most of the buttons are fairly straightforward, as they perform identical functions for all devices, but some have other functions for some devices.

Notes on Using the AVR Remote With Other Devices.

• Manufacturers may use different code sets for the same product category. For that reason, it is important that you check to see if the code set you have entered operates as many controls as possible. If it appears that only a few functions operate, check to see if another code set will work with more buttons.

• Depending on the brand and product type used the functions listed in the Function List tables may not correspond with the function the unit reacts on the command. In these cases it's a good idea to edit the reaction of the unit into the corresponding line of the table or to set up a separate list.

• When a button is pressed on the AVR remote, the red light under the **Input Selector** ⓒⓎ for the product being operated should flash briefly. If the Device Control Selector flashes for some but not all buttons for a particular product, it does NOT indicate a problem with the remote, but rather that no function is programmed for the button being pushed.

Punch-Through Programming

The AVR 355/AVR 255 remote's punch-through feature allows you to select one component for the remote to operate, while simultaneously setting certain groups of controls to operate another component. For example, while using the AVR to control surround modes and other audio functions, you may operate the transport controls of your DVD player. Or while using the remote to control video functions on your TV, you may use your cable box to change channels.

To program punch-through control while operating any device:

1. Press and hold the Source Selector (or AVR selector) for the main device the remote will be operating. The Source Selector will light, go dark and then light up again, indicating the remote is in Program mode and that you may release the button.
2. Select the type of punch-through programming.
   a) To program channel control punch-through, press the Channel Up Button.
   b) To program transport control punch-through, press the Play Button.
3. Press the Source Selector for the device whose channel or transport controls you would like to be active while operating the device you selected in the first step. The Source Selector will flash to confirm the programming.

For example, if you wish to watch your TV while changing channels using your cable box, first press the TV Button until it lights. Then press the Channel Up Button, followed by the CBL/SAT Button.

To undo punch-through programming, follow the same steps as above, but press the same Source Selector in Steps 1 and 3.

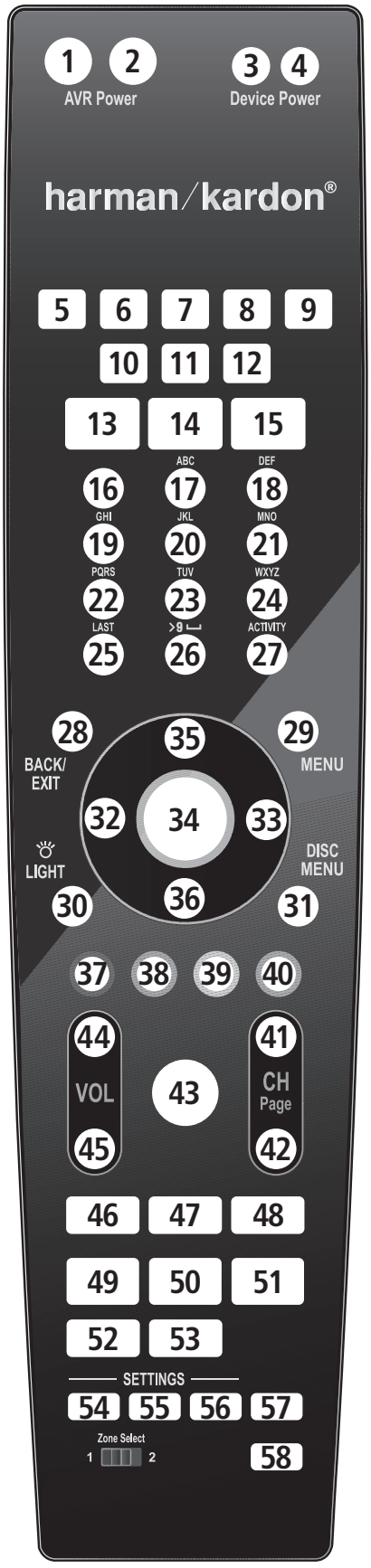
NOTE: The remote always allows volume-control punchthrough, since the Volume and Mute controls are dedicated to the AVR.

Resetting the Remote Memory

As you add components to your home-theater system, occasionally you may wish to totally reprogram the remote control without the confusion of any commands, activities or "Punch-Through" programming that you may have done. To do this, it is possible to reset the remote to the original factory defaults and command codes by following these steps. Note, however, that once the remote is reset, all commands or codes that you have entered will be erased and will need to be re-entered:

1. Press the TV Device Button Ⓒ and the "**0**" number Button Ⓚ simultaneously. The TV button lights up.
2. Press the **"3"** button Ⓚ three times.
3. After a number of seconds, depending on the number of commands that are programmed and need erasing, all the Device Buttons Ⓒ as well as the AVR Button Ⓨ blink 3 times to indicate that the remote has been reset to the factory settings.

Function List AVR 355

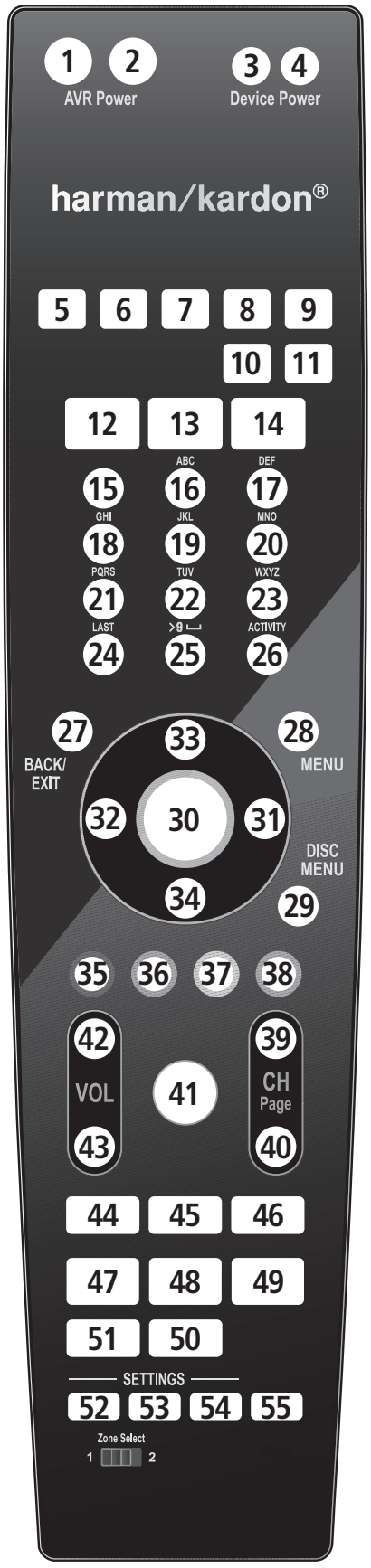


		AVR		The Bridge	Radio		DVD
No.	**BUTTON Name**	**AVR**	**AVR Zone 2**	**The Bridge**	**FM**	**AM**	**DVD**
01	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On
02	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off
03	Device Power On						Power On
04	Device Power Off						Power Off
05	CBL/SAT	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
06	DVD	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
07	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge
08	Radio	Radio	Radio	Radio	Radio	Radio	Radio
09	TV	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
10	Game	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
11	Media Server	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
12	AUX	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
13	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects
14	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes
15	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes
16	1	1	1	1	1	1	1
17	2	2	2	2	2	2	2
18	3	3	3	3	3	3	3
19	4	4	4	4	4	4	4
20	5	5	5	5	5	5	5
21	6	6	6	6	6	6	6
22	7	7	7	7	7	7	7
23	8	8	8	8	8	8	8
24	9	9	9	9	9	9	9
25	Last	Last	Last	Last	Last	Last	
26	0	0	0	0	0	0	0
27	Activity						
28	Back/Exit	Back/Exit	Back/Exit	Back/Exit	Back/Exit	Back/Exit	Clear
29	Menu	Menu	Menu	Menu	Menu	Menu	Disc Menu
30	Light						
31	Disc Menu						Disc Menu
32	Left <	Left <	Left <	Left <	Left <	Left <	Left
33	Right >	Right >	Right >	Right >	Right >	Right >	Right
34	OK	OK	OK	OK	OK	OK	Enter
35	Up	Up	Up	Up	Up	Up	Up
36	Down	Down	Down	Down	Down	Down	Down
37	Red						Angle
38	Green						Subtitle
39	Yellow						Audio
40	Blue						Zoom
41	Channel/Page Up	Channel/Page Up	Channel/Page Up	Channel/Page Up	Channel/Page Up	Channel/Page Up	
42	Channel/Page Down	Channel/Page Down	Channel/Page Down	Channel/Page Down	Channel/Page Down	Channel/Page Down	
43	Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute
44	Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +
45	Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -
46	Previous	Previous	Previous	Previous	Previous	Previous	Prev Step
47	Pause	Pause	Pause	Pause	Pause	Pause	Pause
48	Next	Next	Next	Next	Next	Next	Next Step
49	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	REW
50	Play(▶)	Play(▶)	Play(▶)	Play(▶)	Play(▶)	Play(▶)	Play
51	FF(▶▶)	FF(▶▶)	FF(▶▶)	FF(▶▶)	FF(◀◀)	FF(▶▶)	FF
52	Stop	Stop	Stop	Stop	Stop	Stop	Stop
53	Record						
54	AVR Settings	AVR	AVR	AVR	AVR	AVR	AVR
55	Info Settings	Info	Info	Info	Info	Info	Info
56	Source Settings						Setup
57	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep
58	Learn						

Function List AVR 355

	DVD	Server		TV	CBL/SAT	Game	AUX			
No.	DVDR	DMC250	DMC1000	TV	CBL/SAT	UR Function	CD	HDTV	PVD	VCR
01	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On
02	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off
03	On	On	On	Power On	Power On	Play	Power On	Power On	Power On	Power On
04	Off	Off	Off	Power Off	Power Off	Stop	Power Off	Power Off	Power Off	Power Off
05	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
06	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
07	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge	The Bridge
08	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio
09	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
10	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
11	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
12	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
13	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects
14	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes
15	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes
16	1	1	1	1	1	1	1	1	1	1
17	2	2	2	2	2	2	2	2	2	2
18	3	3	3	3	3	3	3	3	3	3
19	4	4	4	4	4	4	4	4	4	4
20	5	5	5	5	5	5	5	5	5	5
21	6	6	6	6	6	6	6	6	6	6
22	7	7	7	7	7	7	7	7	7	7
23	8	8	8	8	8	8	8	8	8	8
24	9	9	9	9	9	9	9	9	9	9
25					Back	Enter		Prev.Ch	Instant Replay	
26	0	0	0	0	0	0	0	0	0	0
27										
28	Exit	Return	Back		Exit	Clear		Exit/Cancel	Exit	Clear
29	EZRecord	Source	Menu	Menu	Menu	Start		Menu	Menu	Menu
30										
31	Disc Menu	Disc Menu	Disc Menu			DVD Menu		Osd	Av	
32	Left	Left <	Left <	Left <	Left <	Left		Left	Left	Left
33	Right	Right >	Right >	Right >	Right >	Right		Right	Right	Right
34	OK	Enter	Enter	OK	OK	Select		Enter	Set up	OK
35	Up	Up	Up	Up	Up	Up		Up	Up	Up
36	Down	Down	Down	Down	Down	Down		Down	Down	Down
37	Angle	Angle	Angle	Red		●	Open/Close	Caption	Mark	
38	Subtitle	Subtitle	Subtitle	Green		■	Random Play	Fav.Ch	Repeat	
39	Audio	Audio	Audio	Yellow		▲	Repeat	Mts	Jump Up	
40	Zoom	Zoom	Zoom	Blue		X	Intro Scan	Aspect	Jump Down	
41				Channel Up	Channel Up	Scan Up	(+10)	Channel Up	Channel Up	CH+
42				Channel Down	Channel Down	Scan Down	Disk Skip	Channel Down	Channel Down	CH-
43	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute
44	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +
45	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -
46	PR-/Previous	Previous	Previous	Text Cancel		Slow Down	Skip Down	Back	Last Clip	Scan Down
47	Pause	Pause	Pause	Text Off		Pause	Pause	Pause	Pause	Pause
48	PR+/Next	Next/Step	Next/Step	Text Timed		Slow Up	Skip Up	Replay	Next Clip	Scan Up
49	Reverse	Rew(◀◀)	Rew(◀◀)	Text Reveal		Prev	R. Search	Rewind	Rewind	Rew
50	Play	Play(▶)	Play(▶)	Text On		Play	Play	Play	Play	Play
51	Forward	FF(▶▶)	FF(▶▶)	Text Index		Next	F. Search	Fast Forward	Fast Forward	FF
52	Stop	Stop	Stop			Stop	Stop	Stop	Stop	Stop
53	Record	Record	Record			Subtitle	Time	Record	Record	Rec
54	AVR	AVR	AVR	AVR	AVR	AVR	AVR	AVR	AVR	AVR
55	Info	Info	Info	Info	Info	Info	Info	Info	Info	Info
56	Setup	Setup	Setup	TV/VCR		Program		TV/VCR	TV/DVR	TV/VCR
57	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep
58										

Function List AVR 255



No.	BUTTON Name	AVR		Radio		DVD	
		AVR	AVR Zone 2	FM	AM	DVD	DVDR
01	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On
02	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off
03	Device Power On					Power On	On
04	Device Power Off					Power Off	Off
05	CBL/SAT	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
06	DVD	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
07	Radio	Radio	Radio	Radio	Radio	Radio	Radio
08	TV	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
09	Game	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
10	Media Server	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
11	AUX	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
12	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects
13	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes
14	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes
15	1	1	1	1	1	1	1
16	2	2	2	2	2	2	2
17	3	3	3	3	3	3	3
18	4	4	4	4	4	4	4
19	5	5	5	5	5	5	5
20	6	6	6	6	6	6	6
21	7	7	7	7	7	7	7
22	8	8	8	8	8	8	8
23	9	9	9	9	9	9	9
24	Last	Last	Last	Last	Last		
25	0	0	0	0	0	0	0
26	Activity						
27	Back/Exit	Back/Exit	Back/Exit	Back/Exit	Back/Exit	Clear	Exit
28	Menu	Menu	Menu	Menu	Menu	Disc Menu	EZRecord
29	Disc Menu					Disc Menu	Disc Menu
30	Left <	Left <	Left <	Left <	Left <	Left	Left
31	Right >	Right >	Right >	Right >	Right >	Right	Right
32	OK	OK	OK	OK	OK	Enter	OK
33	Up	Up	Up	Up	Up	Up	Up
34	Down	Down	Down	Down	Down	Down	Down
35	Red					Angle	Angle
36	Green					Subtitle	Subtitle
37	Yellow					Audio	Audio
38	Blue					Zoom	Zoom
39	Channel/Page Up	Channel/Page Up	Channel/Page Up	Channel/Page Up	Channel/Page Up		
40	Channel/Page Down	Channel/Page Down	Channel/Page Down	Channel/Page Down	Channel/Page Down		
41	Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute
42	Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +
43	Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -
44	Previous	Previous	Previous	Previous	Previous	Prev Step	PR-/Previous
45	Pause	Pause	Pause	Pause	Pause	Pause	Pause
46	Next	Next	Next	Next	Next	Next Step	PR+/Next
47	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	Rew(◀◀)	REW	Reverse
48	Play(▶)	Play(▶)	Play(▶)	Play(▶)	Play(▶)	Play	Play
49	FF(▶▶)	FF(▶▶)	FF(▶▶)	FF(▶▶)	FF(▶▶)	FF	Forward
50	Stop	Stop	Stop	Stop	Stop	Stop	Stop
51	Record						Record
52	AVR Settings	AVR	AVR	AVR	AVR	AVR	AVR
53	Info Settings	Info	Info	Info	Info	Info	Info
54	Source Settings					Setup	Setup
55	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep

Function List AVR 255

	Server		TV	CBL/SAT	Game	AUX			
No.	**DMC250**	**DMC1000**	**TV**	**CBL/SAT**	**UR Function**	**CD**	**HDTV**	**PVD**	**VCR**
01	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On
02	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off
03	On	On	Power On	Power On	Play	Power On	Power On	Power On	Power On
04	Off	Off	Power Off	Power Off	Stop	Power Off	Power Off	Power Off	Power Off
05	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
06	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
07	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio
08	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
09	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
10	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
11	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL	INPUT SEL
12	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects
13	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes
14	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes
15	1	1	1	1	1	1	1	1	1
16	2	2	2	2	2	2	2	2	2
17	3	3	3	3	3	3	3	3	3
18	4	4	4	4	4	4	4	4	4
19	5	5	5	5	5	5	5	5	5
20	6	6	6	6	6	6	6	6	6
21	7	7	7	7	7	7	7	7	7
22	8	8	8	8	8	8	8	8	8
23	9	9	9	9	9	9	9	9	9
24				Back	Enter		Prev.Ch	Instant Replay	
25	0	0	0	0	0	0	0	0	0
26									
27	Return	Back		Exit	Clear		Exit/Cancel	Exit	Clear
28	Source	Menu	Menu	Menu	Start		Menu	Menu	Menu
29	Disc Menu	Disc Menu			DVD Menu		Osd	Av	
30	Left <	Left <	Left <	Left <	Left		Left	Left	Left
31	Right >	Right >	Right >	Right >	Right		Right	Right	Right
32	Enter	Enter	OK	OK	Select		Enter	Set up	OK
33	Up	Up	Up	Up	Up		Up	Up	Up
34	Down	Down	Down	Down	Down		Down	Down	Down
35	Angle	Angle	Red		●	Open/Close	Caption	Mark	
36	Subtitle	Subtitle	Green		■	Random Play	Fav.Ch	Repeat	
37	Audio	Audio	Yellow		▲	Repeat	Mts	Jump Up	
38	Zoom	Zoom	Blue		X	Intro Scan	Aspect	Jump Down	
39			Channel Up	Channel Up	Scan Up	(+10)	Channel Up	Channel Up	CH+
40			Channel Down	Channel Down	Scan Down	Disk Skip	Channel Down	Channel Down	CH-
41	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute
42	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +
43	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -	AVR Volume -
44	Previous	Previous	Text Cancel		Slow Down	Skip Down	Back	Last Clip	Scan Down
45	Pause	Pause	Text Off		Pause	Pause	Pause	Pause	Pause
46	Next/Step	Next/Step	Text Timed		Slow Up	Skip Up	Replay	Next Clip	Scan Up
47	Rew(◀◀)	Rew(◀◀)	Text Reveal		Prev	R. Search	Rewind	Rewind	Rew
48	Play(▶)	Play(▶)	Text On		Play	Play	Play	Play	Play
49	FF(▶▶)	FF(▶▶)	Text Index		Next	F. Search	Fast Forward	Fast Forward	FF
50	Stop	Stop			Stop	Stop	Stop	Stop	Stop
51	Record	Record			Subtitle	Time	Record	Record	Rec
52	AVR	AVR	AVR	AVR	AVR	AVR	AVR	AVR	AVR
53	Info	Info	Info	Info	Info	Info	Info	Info	Info
54	Setup	Setup	TV/VCR		Program		TV/VCR	TV/DVR	TV/VCR
55	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep

Troubleshooting Guide

SYMPTOM	CAUSE	SOLUTION
Unit does not function when **Main Power Switch** 1 is pushed	• No AC Power	• Make certain AC power cord is plugged into a live outlet • Check to see if outlet is switch controlled
Display lights, but no sound or picture	• Intermittent input connections • **Mute** is on • Volume control is down	• Make certain that all input and speaker connections are secure • Press **Mute** button 39 G • Turn up volume control
No sound from any speaker; Protect Warning in Display	• Amplifier is in protection mode due to possible short • Amplifier is in protection mode due to internal problems	• Check speaker-wire connections for shorts at receiver and speaker ends • Contact your local Harman Kardon service depot
No sound from surround or center speakers	• Incorrect surround mode • Input is mono • Incorrect configuration • Stereo or Mono program material	• Select a mode other than Stereo • There is no surround information from mono sources • Check speaker mode configuration • Some surround modes may not create rear-channel information from nonencoded programs
Unit does not respond to remote commands	• Weak batteries in remote • Wrong device selected • **Remote sensor** 20 is obscured	• Change remote batteries • Press the **AVR Selector** 6 • Make certain front-panel sensor is visible to remote or connect remote sensor
Intermittent buzzing in tuner	• Local interference	• Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances
Letters flash in the **Channel Indicator Display** 14 and Digital Audio stops	• Digital audio feed paused	• Resume play for DVD • Check that Digital Signal is fed to the Digital Input selected
No picture or on-screen information on the TV screen.	• AVR Resolution to Display is not correct, too high or too low.	• Select correct Resolution as described on page 21 "Resolution To Display"

Processor Reset

In the rare case where the unit's operation or the displays seem abnormal, the cause may involve the erratic operation of the system's memory or microprocessor.

To correct this problem, first unplug the unit from the AC wall outlet and wait at least three minutes. After the pause, reconnect the AC power cord and check the unit's operation. If the system still malfunctions, a system reset may clear the problem.

To clear the AVR's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first put the unit in Standby by pressing the **System Power Control** button 2. Next press and hold the **OK button** 6 for five seconds.

The unit will turn on automatically and show the word RESET in the Display for a few seconds. Then it reverts to normal ON status. Note that once you have cleared the memory in this manner, it is necessary to re-establish all system configuration settings and tuner presets.

NOTE: Resetting the processor will erase any configuration settings you have made for speakers, output levels, surround modes, digital input assignments as well as the tuner presets. After a reset the unit will be returned to the factory presets, and all settings for these items must be reentered.

If the system is still operating incorrectly, there may have been an electronic discharge or severe AC line interference that has corrupted the memory or microprocessor.

If these steps do not solve the problem, consult an authorized Harman Kardon service depot.

Technical Specifications

Audio Section

Stereo Mode
Continuous Average Power (FTC)

AVR 255: 65 Watts per channel, 20Hz - 20 kHz
AVR 355: 70 Watts per channel, 20Hz - 20 kHz
@ < 0.07% THD, both channels driven into 8 ohms

7 Channel Surround Modes
Power Per Individual Channel, with all channels driven

Front L&R channels:
AVR 255: 50 Watts per channel
AVR 355: 65 Watts per channel
@ < 0.07% THD, 20Hz–20kHz into 8 ohms

Center channel:
AVR 255: 50 Watts
AVR 355: 65 Watts
@ < 0.07% THD, 20Hz–20kHz into 8 ohms

Surround (L & R Side, Back) channels:
AVR 255: 50 Watts per channel
AVR 355: 65 Watts per channel
@ < 0.07% THD, 20Hz–20kHz into 8 ohms

Input Sensitivity/Impedance	
Linear (High Level)	200mV/47kohms
Signal-to-Noise Ratio (IHF-A)	100dB
Surround System Adjacent Channel Separation	
Analog Decoding (Pro Logic, etc.)	40dB
Dolby Digital (AC-3)	55dB
DTS	55dB
Frequency Response	
@ 1W (+0dB, –3dB)	10Hz–130kHz
High Instantaneous Current Capability (HCC)	±35 Amps
Transient Intermodulation Distortion (TIM)	Unmeasurable
Rise Time	16 µsec
Slew Rate	40V/µsec**

FM Tuner Section

Frequency Range	87.5–108MHz
Usable Sensitivity	IHF 1.3 µV/13.2dBf
Signal-to-Noise Ratio	Mono/Stereo: 70/68dB (DIN)
Distortion	Mono/Stereo: 0.2/0.3%
Stereo Separation	40dB @ 1kHz
Selectivity	±400kHz: 70dB
Image Rejection	80dB
IF Rejection	90dB

AM Tuner Section

Frequency Range	522–1620kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop: 500µV
Distortion	1kHz, 50% Mod: 0.8%
Selectivity	±10kHz: 30dB

Video Section

Video Format	PAL/NTSC
Input Level/Impedance	1Vp-p/75 ohms
Output Level/Impedance	1Vp-p/75 ohms
Video Frequency Response (Composite and S-Video)	10Hz–8MHz (-3dB)
Video Frequency Response (Component)	10Hz–100MHz (-3dB)

General

Power Requirement	AC 220–240V/50Hz
Power Consumption	AVR 255: Standby < 1W, 540W maximum
	AVR 355: Standby < 3W, 890W maximum
	(7 channels driven)
Dimensions (Max)	
Width	440mm
Height	165mm
Depth	382mm
Weight net	AVR 255: 14,0 kg AVR 355: 14,4 kg

Depth measurement includes knobs, buttons and terminal connections.
Height measurement includes feet and chassis.
All features and specifications are subject to change without notice.

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Appendix – Default settings, worksheets, remote product codes

Table A1 – Recommended Source Component Connections

Device Type	AVR Source	Digital Audio Connection	Analog Audio Connection	Video Connections
Cable TV, satellite TV, HDTV or other device that delivers television programs	CBL/SAT	HDMI 2	Analog 1	HDMI 2
DVD Audio/Video, SACD, Blu-ray Disc, HD-DVD player	DVD	HDMI 1	Analog 2	HDMI 1
Media Server, including Harman Kardon DMC 1000	Media Server	Optical 2	Analog 5	S-Video 1
TV	TV	Optical 1	Analog 3	Component 1*
Video game console	Game	HDMI 3	Analog 4	HDMI 3
Any audio or video device, e.g. CD player, camcorder, cassette deck	AUX	Coax Front	Analog Front	Composite Front (not used for audio-only devices)
Recorder	Any	Coaxial 1 or 2 input and Coaxial Output	Analog 4 inputs and outputs	Composite OR S-Video 2 input and output
Portable audio player	AUX	Any	Stereo Jack (use mini-plug cable, not included)	Not required.

*Make this connection only when using the TV source for a non-display device. Do not connect your television's or video display's video output to the AVR at any time.

Table A2 – Source Setting Defaults

	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX
Surround Modes (Auto Select)	Logic 7 Movie	Logic 7 Movie	Logic 7 Movie	Logic 7 Movie	Logic 7 Movie	Logic 7 Movie	Logic 7 Movie
Video Input	HDMI 2	HDMI 1	S-Video 1	N/A	Component 1	HDMI 3	Composite Front
Audio Input	HDMI 2	HDMI 1	Optical 2	N/A	Optical 1	HDMI 3	Coaxial Front
Resolution to Display	576i	576i	576i	576i	576i	576i	576i
Audio Auto Polling	Analog 1	Analog 2	Analog 5	N/A	Analog 3	Analog 4	Analog Front
Zone 2 Audio	Analog 1	Analog 2	Analog 5	N/A	Analog 3	Analog 4	Analog Front

APPENDIX – SETTINGS WORKSHEET

Table A3 – Speaker/Channel Setting Defaults

Audio Input	All Digital and 2-Channel Analog Audio Inputs	6-/8-Channel Analog Audio Inputs*	Your Settings
Left/Right Speakers	ON	ON	
Center Speaker	ON	ON	
Left/Right Surround Speakers	ON	ON	
Left/Right Surround Back Speakers	ON	ON	
Subwoofer	ON	ON	
Left/Right Speakers Crossover	100Hz	Large*	
Center Speaker Crossover	100Hz	Large*	
Left/Right Surround Speakers Crossover	100Hz	Large*	
Left/Right Surround Back Speakers Crossover	100Hz	Large*	
Subwoofer Mode	LFE	N/A*	
Subwoofer Size	8 inch	N/A*	
Front Left Level	0dB	0dB	
Center Level	0dB	0dB	
Front Right Level	0dB	0dB	
Surround Right Level	0dB	0dB	
Surround Back Right Level	0dB	0dB	
Surround Back Left Level	0dB	0dB	
Surround Left Level	0dB	0dB	
Sub Level	0dB	0dB	

*Note: The 6-/8-Channel Inputs are "direct" inputs whose signals are passed directly to the volume control without any bass management processing. Thus, the speakers are always full-range and cannot be adjusted. The settings are global for the remaining audio inputs.

Table A4 – Delay Setting Defaults

Speaker Position	Distance From Speaker to Listening Position	Your Delay Settings
Front Left	3 meters	
Center	3 meters	
Front Right	3 meters	
Surround Right	3 meters	
Surround Left	3 meters	
Surround Back Right	3 meters	
Surround Back Left	3 meters	
Subwoofer	3 meters	
A/V Sync Delay	0mS	

Table A5 – Source Settings

	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX
Surround Modes							
Video Input							
Audio Input							
Resolution to Display							
Adjust Lip Sync							
Change Name							
Audio Auto Polling							
Zone 2 Audio							

Table A6 – Audio Effects Settings

	Default	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX
Tone Control	Off							
Treble	0dB							
Bass	0dB							
LFE Trim	Off							
Night Mode	Off							

Table A7 – Video Modes Settings

	Default	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX
Video Mode	Processor Off							
Brightness*	50							
Contrast*	50							
Color*	50							
Sharpness*	50							
Picture Adjust	Auto Fit							
Noise Reduction**	Off							
MPEG Noise Reduction**	Off							
Cross Color Suppressor**	Off							
Film Mode Detect**	Off							

*Note: These settings are only available when the Video Mode is set to Custom.
**Note: These settings are only displayed when Advanced Video Settings is selected.

Table A8 – Surround Modes

	Default	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX
Auto Select	Logic 7 Movie or native digital format							
Virtual Surround	Dolby Virtual Speaker Reference							
Stereo	7 CH Stereo							
Movie	Logic 7 Movie							
Music	Logic 7 Music							
Game	Logic 7 Game							
Center Width*	0							
Dimension*	0							
Panorama*	Off							

*Note: These settings are only available when Dolby Pro Logic II or IIx Music mode has been selected. Access these settings by selecting the Edit option.

Table A9 – Remote Control Codes

Source Input	Device Type (if changed)	Product Code
Cable/Sat		
DVD		
Media Server		
TV		
Game		
AUX		

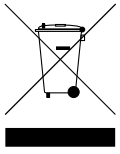
Table A10 – System Settings

Feature	Default	Your Setting
Front Panel Dimmer	On 100%	
Volume Units	dB	
Volume Default	Off	
Volume Default Level	-25dB	
Unit of Measure	Feet	
Language	English	
HDMI Audio to TV	Off	
OSD Transparency	Normal	
Volume/Status Messages	3 seconds	
Menus	5 seconds	
Setup and Slide-In Menus	15 minutes	
Screen Saver	5 minutes	

Table A11 – Zone 2 Settings

Source Input	Device Type (if changed)	Your Settings
Status	Off	
Source	Cable/Sat	
Volume	-25dB	
Surround Back Amps	Main Room	

APPENDIX – SETTINGS WORKSHEET



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