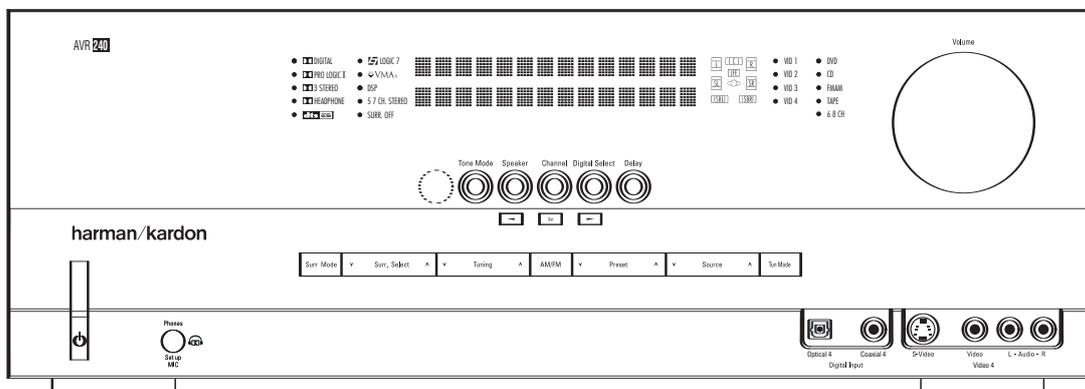


harman/kardon®
Power for the Digital Revolution.®

AVR 240

AUDIO/VIDEO RECEIVER
OWNER'S MANUAL



AVR 240 AUDIO/VIDEO RECEIVER

3	Introduction
4	Important Safety Information
4	Unpacking
5	Front-Panel Controls
8	Rear-Panel Connections
11	Remote Control Functions
15	Installation and Connections
16	System and Power Connections
18	System Configuration
18	Speaker Selection and Placement
20	System Setup
20	Using the On-Screen Display
21	Input Setup
22	Audio Setup
22	Surround Setup
24	Automated Speaker Setup Using EzSet+
26	Manual Setup
27	Speaker Size
28	Speaker Crossover Settings
29	Delay Settings
30	Output Level Adjustment
32	Operation
32	Basic Operation
32	Source Selection
32	6-Channel/8-Channel Direct Input
32	Volume and Tone Control
33	Surround Mode Selection
34	Surround Mode Chart
36	Digital Audio Playback
37	Surround Mode Post Processing
38	Surround Mode Availability
39	Tuner Operation
39	Recording
40	Using Bridge
40	Output Level Trim Adjustment
40	Dim Function
42	Advanced Features
44	Programming the Remote
44	Programming Device Codes
44	Macro Programming
45	Programmed Device Functions
46	Volume Punch-Through
46	Channel Control Punch-Through
46	Transport Control Punch-Through
46	Resetting the Remote Memory
47	Function List
49	Setup Code Tables
59	Troubleshooting Guide
59	Processor Reset
60	Technical Specifications
60	Trademark Acknowledgements
61	Index
62	Appendix – Settings Worksheet



For Canadian model

This class B digital apparatus complies with Canadian ICES-003.

For models having a power cord with a polarized plug: CAUTION: To prevent electric shock, match wide blade of plug to wide slot, fully insert.

Modèle pour les Canadien

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Sur les modèles dont la fiche est polarisée: ATTENTION: Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu'au fond.

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 screen or on the front-panel information display

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

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

1 – (number in an oval) indicates a button or indicator on the remote

Please register your product on our Web site at www.harmanardon.com. Note: You'll need the product's serial number. At the same time, you can choose to be notified about our new products and/or special promotions.

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.

Thank you for choosing Harman Kardon®! With the purchase of a Harman Kardon AVR 240, 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 240 accomplishes its mission by harnessing advanced technologies usually found only in higher-priced receivers.

The AVR 240 has been engineered so that it is easy to take advantage of all the power of its digital technology. 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 240 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 240 is versatile and multifeatured, incorporating a wide range of listening options. In addition to Dolby® Digital and DTS® decoding for digital sources, a broad choice of Matrix surround-encoded or stereo surround modes are available for use with your CD, VCR, TV broadcasts and the AVR 240's own FM/AM tuner. Along with Dolby Digital EX, Dolby Pro Logic® IIx, DTS Neo:6®, DTS 96/24, Dolby 3 Stereo, and Hall and Theater modes, the AVR 240 offers Harman International's exclusive Logic 7® processing in both 5.1 and 7.1 versions to create a wider, more enveloping field environment and more defined fly-overs and pans. Another exclusive is VMAx®, which uses proprietary processing to create an open, spacious sound field even when only two front speakers are available. Dolby Virtual Speaker is also available to create an enveloping sound field when fewer than six speakers are used. The latest Dolby Headphone modes provide a much more open and realistic presentation for private headphones listening.

In addition to providing a wide range of listening options, the AVR 240 is easy to configure so that it provides the best results with your speakers and specific listening-room environment. On-screen menus combine with the EzSet+ system to automate speaker configuration and overall setup, resulting in a perfectly balanced sound field presentation that accurately reproduces the artist's intent.

In tandem with EzSet+, the AVR 240 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.

For the ultimate in flexibility, the AVR 240 features connections for five video devices, all with both composite and S-video inputs. Two additional audio inputs are available, and six digital inputs make the AVR 240 capable of handling all the latest digital audio sources. For compatibility with the latest HDTV video sources and progressive scan DVD players, the AVR 240 also features assignable two-input, wide-bandwidth, low-crosstalk component video switching.

The front panel offers coax and optical digital inputs for direct connection to digital recorders. Two video recording outputs, a preamp-out and a color-coded eight-channel input make the AVR 240 virtually future-proof, with everything needed to accommodate tomorrow's new formats right onboard.

Until now, Harman Kardon AVRs have been able to accommodate almost any source device equipped with line-level analog, optical digital or coaxial digital outputs, including most digital media players. With one simple connection between the AVR 240 and the optional Harman Kardon™ Bridge™, you are able to listen to materials stored on your compatible iPod®** (not included). 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 240's powerful seven-channel 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 than fifty years ago. With state-of-the-art circuitry and time-honored circuit designs, the AVR 240 is the perfect combination of the latest in digital audio technology, a quiet yet powerful analog amplifier in an elegant, easy-to-use package.

- A wide range of digital and matrix surround modes, including Dolby® Digital, Dolby Digital EX, Dolby Pro Logic® IIx, Dolby Virtual Speaker, Dolby Headphone, DTS®, DTS-ES® Discrete and Matrix, DTS 96/24® and DTS Neo:6®
- Seven channels of high-current amplification
- Harman Kardon's exclusive Logic 7® processing, available with both 7.1 and 5.1 processing in a variety of modes, and two modes of VMAx®
- EzSet+ system with included microphone automatically configures speakers and sets delay times and output levels for optimal sound presentation
- Programmable remote for control of AVR and seven additional source components
- High-bandwidth, HDTV-compatible component video switching with assignable inputs
- Discrete front-panel coaxial and optical digital inputs for easy connection to portable digital devices and video game consoles
- Connects to Harman Kardon's™ Bridge™ (optional) for charging, playback and control of a compatible iPod® device (not included)
- Input titling for all input sources (except tuner)
- Extensive bass management options, including four separate crossover groupings
- On-screen menu and display system with choice of blue or black background screen
- A/V Sync delay adjustable for each input delivers perfect lip sync with digital programs or video displays

*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 video and photo models are compatible, video files and images stored on the iPod may not be viewed.

SAFETY INFORMATION

Important Safety Information

Verify Line Voltage Before Use

Your AVR 240 has been designed for use with 120-volt AC current. Connection to a line voltage other than that for which it is intended can create a safety and fire hazard and may damage the unit.

If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet.

Do Not Use Extension Cords

To avoid safety hazards, use only the power cord attached to your unit. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately by an authorized service center with a cord meeting factory specifications.

Handle the AC Power Cord Gently

When disconnecting the power cord from an AC outlet, always pull the plug; never pull the cord. If you do not intend to use the unit for any considerable length of time, disconnect the plug from the AC outlet.

Do Not Open the Cabinet

There are no user-serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your guarantee. If water or any metal object such as a paper clip, wire or a staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service center.

CATV or Antenna Grounding

If an outside antenna or cable system is connected to this product, be certain that it is grounded so as to provide some protection against voltage surges and static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements of the grounding electrode.

NOTE TO CATV SYSTEM INSTALLER: This reminder is provided to call the CATV (Cable TV) system installer's attention to article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

Installation Location

- To ensure 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 in 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 240 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, and only after unplugging the AC power cord, 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.

Important Information for the User

This equipment has been tested and found to comply

with the limits for a Class-B digital device, pursuant to Part 15 of the FCC Rules. The limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

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

NOTE: Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user's authority to operate the equipment.

Unpacking

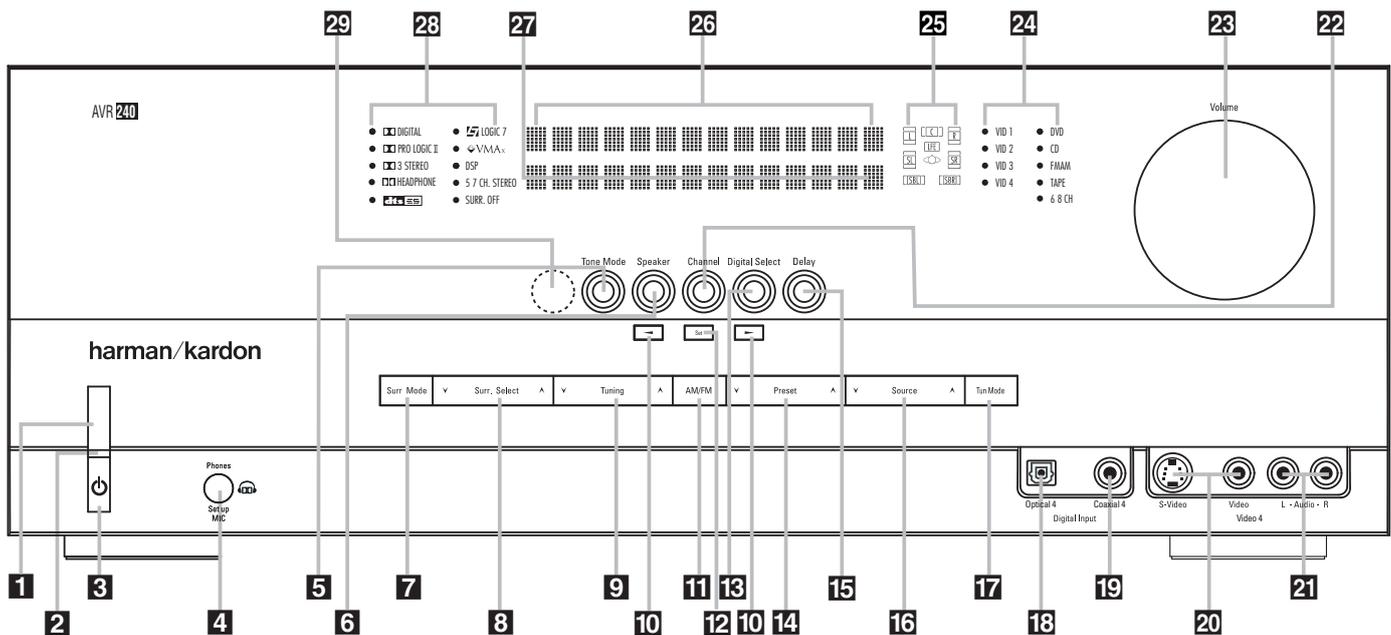
The carton and shipping materials used to protect your new receiver during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move, or should the unit ever need repair.

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



NOTE: To make it easier to follow the instructions that refer to this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmankardon.com.

- | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 Main Power Switch
 2 Power Indicator
 3 Standby/On Switch
 4 Headphone Jack
 5 Tone Mode
 6 Speaker Selector
 7 Surround Mode Group Selector
 8 Surround Mode Selector
 9 Tuning Selector
 10 ◀▶ Buttons</p> | <p>11 Tuner Band Selector
 12 Set Button
 13 Digital Input Selector
 14 Preset Station Selector
 15 Delay Adjust Selector
 16 Input Source Selector
 17 Tuner Mode Selector
 18 Optical 3 Digital Audio Input
 19 Coaxial 3 Digital Audio Input
 20 Video 4 Video Input Jacks</p> | <p>21 Video 4 Audio Input Jacks
 22 Channel Adjust Selector
 23 Volume Control
 24 Input Indicators
 25 Speaker/Channel Input Indicators
 26 Upper Display Line
 27 Lower Display Line
 28 Surround Mode Indicators
 29 Remote Sensor Window</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

1 Main Power Switch: Press this button to apply power to the AVR 240. When the switch is pressed in, the unit is in a Standby mode, as indicated by the amber **Power Indicator 2**. This button **MUST** be pressed in to operate the unit. To turn the unit off and prevent the use of the remote control, this switch should be pressed until it pops out from the front panel and the word "OFF" is seen at the top of the switch.

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

2 Power Indicator: This LED lights amber when the unit is in the Standby mode to signal that the AVR is ready to be turned on. When the unit is in operation, the indicator is blue.

3 Standby/On Switch: When the **Main Power Switch 1** is "ON," press this button to turn on the AVR 240; press it again to turn the unit off. The **Power Indicator 2** turns blue when the unit is on.

4 Headphone Jack: This jack may be used to listen to the AVR 240's output through a pair of headphones. The speakers will automatically be turned off when the headphone jack is in use. When configuring your system using EzSet+, 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 1/4" plug.

5 Tone Mode: This button controls the tone mode settings, enabling adjustment of the bass and treble boost/cut. You may also use it to take the tone controls out of the signal path completely for "flat" response. The first press of the button displays a **TONE IN** message in the **Lower Display Line 27** and in the on-screen display. To take the controls out of the signal path, press either of the **◀▶ Buttons 10** until the display reads **TONE OUT**.

To change the bass or treble settings, make sure that **TONE IN** appears in the **Lower Display Line 27** or press either of the **◀▶ Buttons 10** until it does.

Press the **Tone Mode Button 5** until the desired option of **TREBLE MODE** or **BASS MODE** appears in the **Lower Display Line 27** and in the on-screen display and then press either of the **◀▶ Buttons 10** to enter the desired boost or cut setting. Both treble and bass contours may be boosted or cut by up to + or -10dB in increments of 2dB. See pages 22 and 32 for more information on the tone controls.

NOTE: The AVR 240 is not equipped with a traditional Balance control. When listening to two-channel materials, if you wish to adjust the stereo image, you may use the **Channel Adjust Selector 22** to increase or decrease the level of the left front channel by up to + or -10dB, and then to decrease or increase the right front channel by the corresponding amount. However, when listening to surround materials and most two-channel materials, it is recommended that you leave these settings at the results obtained during the configuration process described on pages 20 through 31.

FRONT-PANEL CONTROLS

6 Speaker Selector: Press this button to begin the process of configuring the unit to match the type of speakers used in your listening room. (See pages 27–29 for more information on speaker setup and configuration.)

7 Surround Mode Group Selector: Press this button to select the top-level group of surround modes. Each press of the button will select the current or last used mode in each of the surround mode groups (e.g., Dolby, DTS, DTS Neo:6, Logic 7, DSP, Stereo). When the button is pressed so that the name of the surround mode group appears in the on-screen display and in the **Lower Display Line 27**, press the **Surround Mode Selector 8** to cycle through the individual modes available. For example, press this button to select Dolby modes, and then press the **Surround Mode Selector 8** to choose from the various Dolby mode options.

8 Surround Mode Selector: Press this button to select from among the available surround mode options for the mode group selected. The specific modes will vary based on the number of speakers available, the mode group and if the input source is digital or analog. For example, press the **Surround Mode Group Selector 7** to select a main mode grouping such as Dolby or Logic 7, and then press this button to see the specific mode choices available. Note that the digital surround modes, such as Dolby Digital and DTS, may not be accessed unless that type of source signal is present, such as when a DVD movie or television signal programmed in Dolby Digital or DTS surround sound is playing. For more information on surround mode selection, see pages 22 and 33.

9 Tuning Selector: Press the left side of the button to tune lower-frequency stations and the right side of the button to tune higher-frequency stations. When the tuner is in the Manual mode, each tap will increase or decrease the frequency by one increment. When the tuner receives a strong enough signal for adequate reception, **MANUAL TUNED** will appear in the on-screen display and the **Lower Display Line 27**. When the tuner is the Auto mode, press the button once, and the tuner will scan for a station with acceptable signal strength. When the next station with a strong signal is tuned the scan will stop and the on-screen display and **Lower Display Line 27** will indicate **AUTO TUNED**. When an FM Stereo station is tuned, the display will read **AUTO ST TUNED**.

To switch back and forth between the Auto and Manual tuning modes, press the **Tuner Mode Selector 17**.

10 ◀▶ Buttons: When configuring the AVR 240's settings, use these buttons to select from all the available choices.

11 Tuner Band Selector: Press this button to turn the AVR on and to select the Tuner as the input. Press it again to switch between the AM and FM frequency bands. (See page 39 for more information on the tuner.)

12 Set Button: When making choices during the setup and configuration process, press this button to enter the desired setting into the AVR 240's memory.

13 Digital Input Selector: Press this button to select one of the digital audio inputs or the analog audio input for any source. (See pages 36–39 for more information on digital audio.)

14 Preset Stations Selector: Press this button to scroll up or down through the list of stations that have been entered into the preset memory. (See page 39 for more information on tuner presets.)

15 Delay Adjust Selector: Press this button to begin the steps required to enter delay settings. (See pages 29–30 for more information on delay times.)

16 Input Source Selector: Press this button to change the input by scrolling up or down through the list of **Input Indicators 24**.

17 Tuner Mode Selector: Press this button to select Auto or Manual tuning. When the button is pressed so that the **AUTO** appears in the **Lower Display Line 27**, the tuner will search for the next station with an acceptable signal when the **Tuning Selector 9 21** is pressed. When the button is pressed so that **MANUAL** appears in the **Lower Display Line 27**, each press of the **Tuning Selector 9 21** will increase the frequency. This button may also be used to switch between Stereo and Mono modes for FM radio reception. When weak reception is encountered, press the button so that **MANUAL** appears in the **Lower Display Line 27** and on the on-screen display to switch to Mono reception. Press it again to switch back to Stereo mode. (See page 39 for more information on using the tuner.)

18 Optical 3 Digital Audio Input: Connect the optical digital audio output of an audio or video product to this jack. When the input is not in use, the built-in shutter will close to avoid dust contamination that might degrade future performance.

19 Coaxial 3 Digital Audio Input: This jack is used for connection to the output of portable audio devices, video game consoles or other products that have a coax digital audio jack.

20 Video 4 Video Input Jacks: These jacks may be used for temporary connection to the composite or S-video output of video games, camcorders or other portable video products. You may make a connection to either jack at any time, but not to both simultaneously.

21 Video 4 Audio Input Jacks: These audio jacks may be used for temporary connection to video games or portable audio/video products such as camcorders and portable audio players.

NOTE: The AVR 240 is shipped with two covers that may be installed over the front-panel input jacks when they are not in use.

22 Channel Adjust Selector: Press this button to begin the process of trimming the channel output levels using an external audio source. (For more information on output level trim adjustment, see page 40.)

23 Volume Control: Turn this knob clockwise to increase the volume, counterclockwise to decrease the volume. If the AVR 240 is muted, adjusting the **Volume Control 23 38** will automatically release the unit from the silenced condition.

24 Input Indicators: The current selected source will appear as one of these indicators. When the unit is turned on, the entire list of available modes will light briefly, and then revert to normal operation with only the active mode indicator illuminated.

NOTE: When **Bridge/DMP** has been selected as the input source, no **Input Indicator 24** will light. **DMP/THE BRIDGE IS CONNECTED** will scroll across the **Upper Display Line 26**, unless you have retitled the source name, in which case that name will appear. See page 21 for more information on input titling.

25 Speaker/Channel Input Indicators: These indicators are multipurpose, indicating both the speaker type selected for each channel and the incoming data-signal configuration. The left, center, right, side surround and back 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 assigned that position. (See pages 27–29 for more information on configuring speakers.)

The letters inside each box display the active input channels. For standard analog sources, only the L and R will light, indicating a stereo input. For a digital source, 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 37 for more information on the Channel Indicators.)

26 Upper Display Line: Depending on the unit's status, a variety of messages will appear here. In normal operation, this line will show current input source and which analog or digital input is in use. When the tuner is the input, this line will identify the station as AM or FM and show the frequency and preset number, if any.

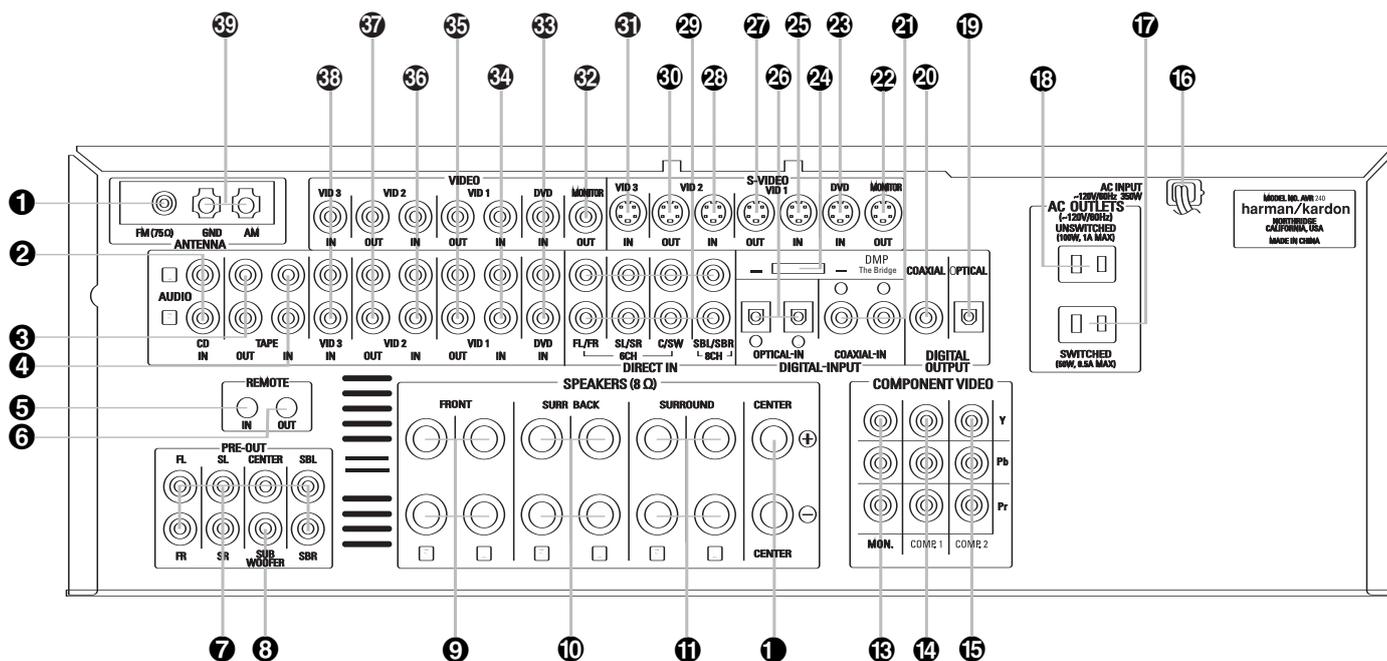
27 Lower Display Line: Depending on the unit's status, a variety of messages will appear here. In normal operation, the current surround mode will show here.

28 Surround Mode Indicators: The current selected surround mode will appear as one of these indicators. Note that when the unit is turned on, the entire list of available modes will light briefly, and then revert to normal operation with only the active mode indicator illuminated.

NOTE: When the Dolby Virtual Speaker mode is in use, no **Surround Mode Indicator 28** will light. However, the surround mode name will scroll in the **Lower Display Line 27**.

29 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.

REAR-PANEL CONNECTIONS



NOTE: To make it easier to follow the instructions that refer to this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmankardon.com.

- | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ❶ FM Antenna Jack ❷ CD Audio Inputs ❸ Tape Outputs ❹ Tape Inputs ❺ Remote IR Input ❻ Remote IR Output ❼ Preamp Outputs ❽ Subwoofer Output ❾ Front Speaker Outputs ❿ Surround Back Speaker Outputs ⓫ Surround Speaker Outputs ⓬ Center Speaker Outputs ⓭ Component Video Monitor Outputs ⓮ Component Video 1 Inputs | <ul style="list-style-type: none"> ⓯ Component Video 2 Inputs ⓰ AC Power Cord ⓱ Switched AC Accessory Outlet ⓲ Unswitched AC Accessory Outlet ⓳ Optical Digital Audio Output ⓴ Coaxial Digital Audio Output ⓵ Coaxial Digital Audio Inputs ⓶ S-Video Monitor Output ⓷ DVD S-Video Input ⓸ Bridge™ DMP Connector ⓹ Video 1 S-Video Input ⓺ Optical Digital Audio Inputs ⓻ Video 1 S-Video Output ⓼ Video 2 S-Video Input | <ul style="list-style-type: none"> ⓽ 6/8-Channel Direct Inputs ⓿ Video 2 S-Video Output ⓿ Video 3 S-Video Input ⓫ Video Monitor Output ⓫ DVD Audio/Video Inputs ⓫ Video 1 Audio/Video Inputs ⓫ Video 2 Audio/Video Inputs ⓫ Video 3 Audio/Video Inputs ⓫ AM Antenna Terminals |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

NOTE: To assist in making the correct connections for multichannel input, output and speaker connections, all connection jacks and terminals are color-coded in conformance with the 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: Purple
Coaxial Digital Audio: Orange

Composite Video: Yellow
Component Video "Y": Green
Component Video "Pr": Red
Component Video "Pb": Blue

❶ FM Antenna Jack: Connect the supplied indoor (or an optional external) FM antenna to this terminal.

❷ CD Audio Inputs: Connect these jacks to the analog audio outputs of a compact disc player or CD changer.

❸ Tape Outputs: Connect these jacks to the RECORD/INPUT jacks of an audio recorder.

❹ Tape Inputs: Connect these jacks to the PLAY/OUT jacks of an audio recorder.

❺ Remote IR Input: If the AVR 240'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 this jack.

6 Remote IR Output: This 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.

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

8 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.

9 Front Speaker Outputs: Connect these outputs to the matching + or – terminals on your left and right speakers. When making speaker connections always make certain to maintain correct polarity by connecting the color-coded (white for front left and red for front right) (+) terminals on the AVR 240 to the red (+) terminals on the speakers and the black (–) terminals on the AVR 240 to the black (–) terminals on the speakers. See page 15 for more information on speaker polarity.

10 Surround Back Speaker Outputs: These speaker terminals are normally used to power the surround back speakers in a 7.1-channel system. Connect these outputs to the matching + and – terminals on your surround back channel speakers. In conformance with the CEA color-code specification, the brown terminal is the positive, or "+," terminal that should be connected to the red (+) terminal on the left Surround Back speaker. The tan terminal is the positive, or "+," terminal that should be connected to the red (+) terminal on the right Surround Back speaker. Connect the black (–) terminals on the AVR to the matching black negative (–) terminals on the surround back speakers. (See page 15 for more information on speaker polarity.)

11 Surround Speaker Outputs: Connect these outputs to the matching + and – terminals on your surround channel speakers. In conformance with the 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, while the gray terminal should be connected to the red (+) terminal on the Surround Right speaker. Connect the black (–) terminal on the AVR to the matching black negative (–) terminals for each surround speaker. (See page 15 for more information on speaker polarity.)

1 Center Speaker Outputs: Connect these outputs to the matching + and – terminals on your center channel speaker. In conformance with the CEA color-code specification, the green terminal is the positive, or "+," terminal that should be connected to the red (+) terminal on the center speaker. Connect the black (–) terminal on the AVR to the black (–) ter-

minal on your speaker. (See page 15 for more information on speaker polarity.)

13 Component Video Monitor Outputs: Connect these outputs to the component video inputs of a video projector or monitor. When a source connected to one of the **Component Video Inputs 14 15** is selected, the signal will be sent to these jacks.

14 Component Video 1 Inputs: Connect the Y/Pr/Pb component video outputs of a DVD player, HDTV set-top converter, satellite receiver or other video source device with component video outputs to these jacks.

15 Component Video 2 Inputs: Connect the Y/Pr/Pb component video outputs of a DVD player, HDTV set-top converter, satellite receiver or other video source device with component video outputs to these jacks.

See page 21 for information on assigning the **Component Video 1 and 2 Inputs 14 15** to the appropriate source inputs.

16 AC Power Cord: Connect the AC power cord to a non-switched AC wall outlet.

17 Switched AC Accessory Outlet: These outlets may be used to power any device you wish to have turned on when the AVR 240 is turned on.

18 Unswitched AC Accessory Outlet: This outlet may be used to power any AC device. The power will remain on at this outlet regardless of whether the AVR 240 is on or off.

NOTE: The total power consumption of all devices connected to the accessory outlets should not exceed 100 watts.

19 Optical Digital Audio Output: Connect this jack to the optical digital input connector on a CD-R/RW, MiniDisc or other digital recorder.

20 Coaxial Digital Audio Output: Connect this jack to the coaxial digital input of a CD-R/RW, MiniDisc or other digital recorder.

21 Coaxial Digital Audio Inputs: Connect the coaxial digital output from a DVD player, HDTV receiver, LD player or CD player to these jacks. The signal may be a Dolby Digital signal, DTS signal or a standard PCM digital source. Do not connect the RF digital output of an LD player to these jacks.

22 S-Video Monitor Output: If any of the input sources used in your system have S-video connections to the AVR, connect this jack to the S-video input on your television, projector or other video display.

23 DVD S-Video Input: Connect the S-video output of a DVD player or other video source to this jack.

24 Bridge Digital Media Player (DMP) Connector: With the AVR 240 turned off, connect the optional Harman Kardon Bridge to this connector. When the Digital Media Player source is selected, you may view iPod control and navigation messages on your video display (if one is connected to one of the **Video Monitor Outputs 22 22**), and in the **Upper and Lower Display Lines 26 27**. You may navigate the iPod and select tracks for playback using the **▲/▼/◀/▶ Buttons 14 15**, the **Set Button 16** and **Transport Controls 27** on your AVR remote. See page 40 for more information.

25 Video 1 S-Video Input: If the product connected to the **Video 1 Audio Inputs 34** has S-video capability, connect this jack to the PLAY/OUT S-video jack on that unit and then make certain that the **S-Video Monitor Output 22** is connected as described above.

26 Optical Digital Audio Inputs: Connect the optical digital output from a DVD player, HDTV receiver, LD player or CD player to these jacks. The signal may be a Dolby Digital signal, a DTS signal or a standard PCM digital source.

27 Video 1 S-Video Output: If the product connected to the **Video 1 Audio Outputs 35** has S-video capability, connect this jack to the REC/IN S-video jack on that unit.

28 Video 2 S-Video Input: If the product connected to the **Video 2 Audio Inputs 36** has S-video capability, connect this jack to the PLAY/OUT S-video jack on that unit and then make certain that the **S-Video Monitor Output 22** is connected as described above.

29 6/8-Channel Direct Inputs: These jacks are used for connection to source devices such as DVD-Audio 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.

30 Video 2 S-Video Output: If the product connected to the **Video 2 Audio Outputs 37** has S-video capability, connect this jack to the REC/IN S-video jack on that unit.

31 Video 3 S-Video Input: If the product connected to the **Video 3 Audio Inputs 38** has S-video capability, connect this jack to the PLAY/OUT S-video jack on that unit and then make certain that the **S-Video Monitor Output 22** is connected as described above.

32 Video Monitor Output: Connect this jack to the composite video input of a TV monitor or video projector to view the on-screen menus and the output of a standard video source.

REAR-PANEL CONNECTIONS

33 DVD Audio/Video Inputs: Connect the composite video and L/R analog audio outputs of a DVD player or other video source to these jacks.

34 Video 1 Audio/Video Inputs: Connect the composite video and L/R analog audio PLAY/OUT jacks of a VCR or other video source to these jacks.

35 Video 1 Audio/Video Outputs: Connect the composite video and L/R analog audio REC/IN jacks of a VCR or other video recording device such as a DVD recorder or PVR to these jacks.

36 Video 2 Audio/Video Inputs: Connect the composite video and L/R analog audio PLAY/OUT jacks of a cable television box or other video source to these jacks.

37 Video 2 Audio/Video Outputs: Connect the composite video and L/R analog audio REC/IN jacks of a VCR or other video recording device such as a DVD recorder or PVR to these jacks.

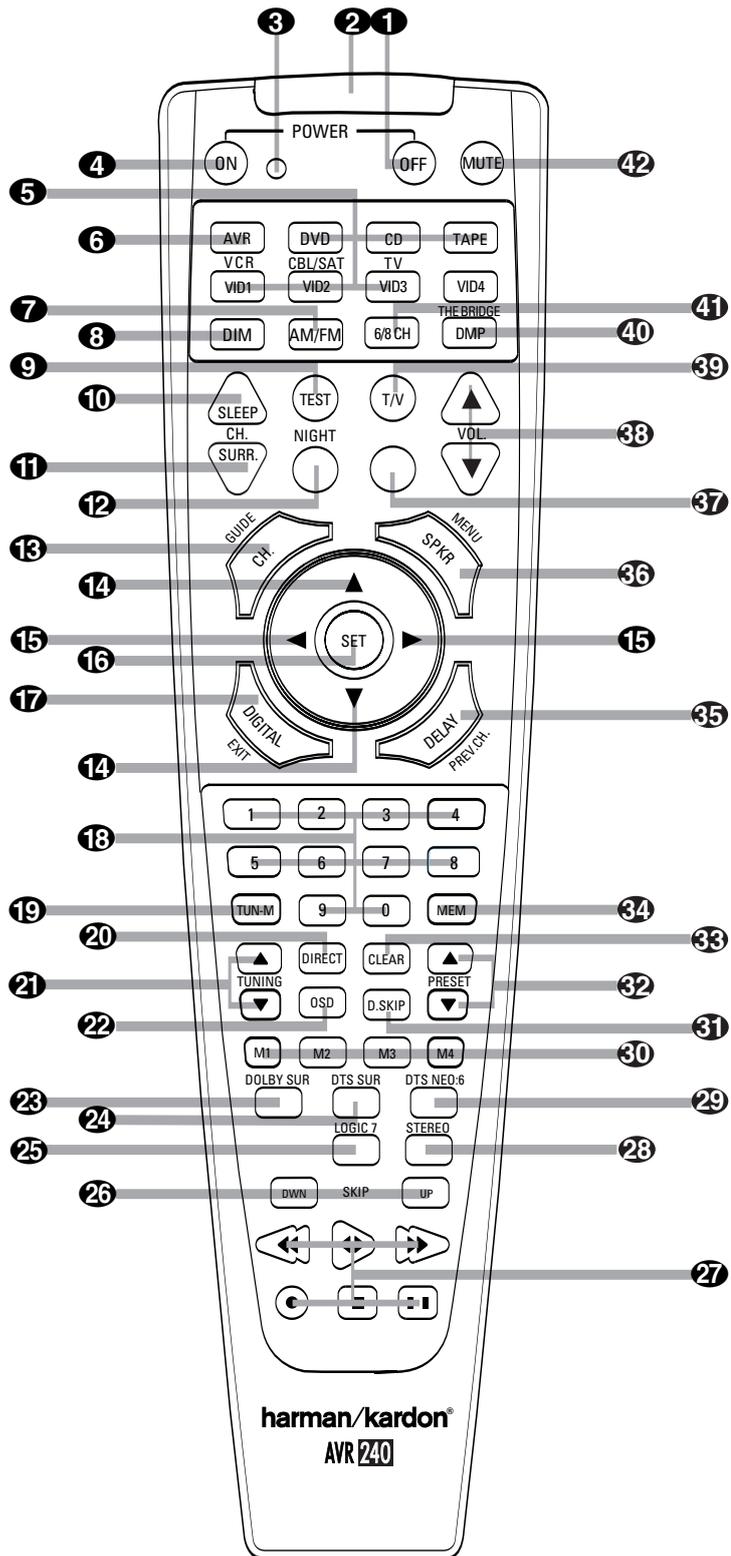
38 Video 3 Audio/Video Inputs: Connect the composite video and L/R analog audio PLAY/OUT jacks of an HDTV tuner or other video source to these jacks.

39 AM Antenna Terminals: 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.

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 240, you may use either a composite or S-video connection, but not both.

REMOTE CONTROL FUNCTIONS

- 1 Power Off Button
- 2 IR Transmitter Window
- 3 Program Indicator
- 4 Power On Button
- 5 Input Selectors
- 6 AVR Selector
- 7 AM/FM Tuner Select
- 8 Dim Button
- 9 Test Button
- 10 Sleep Button
- 11 DSP Surround Mode Selector
- 12 Night Mode
- 13 Channel Select Button
- 14 ▲/▼ Buttons
- 15 ◀/▶ Buttons
- 16 Set Button
- 17 Digital Select
- 18 Numeric Keys
- 19 Tuner Mode
- 20 Direct Button
- 21 Tuning Up/Down
- 22 OSD Button
- 23 Dolby Mode Selector
- 24 DTS Digital Mode Selector
- 25 Logic 7 Mode Select Button
- 26 Skip Up/Down Buttons
- 27 Transport Controls
- 28 Stereo Mode Select Button
- 29 DTS Neo:6 Mode Select
- 30 Macro Buttons
- 31 Disc Skip Button
- 32 Preset Up/Down
- 33 Clear Button
- 34 Memory Button
- 35 Delay/Prev. Ch.
- 36 Speaker Select
- 37 Spare Button
- 38 Volume Up/Down
- 39 TV/Video Selector
- 40 DMP™^{THE BRIDGE} Selector
- 41 6-Channel/8-Channel Direct Input
- 42 Mute



NOTES:

- The function names shown here are each button's feature when used with the AVR 240. Most buttons have additional functions when used with other devices. See pages 47–48 for a list of these functions.
- To make it easier to follow the instructions that refer to this illustration, a larger copy may be downloaded from the Product Support section for this product at www.harmankardon.com.

REMOTE CONTROL FUNCTIONS

IMPORTANT NOTE: The AVR 240's remote may be programmed to control up to eight devices, including the AVR 240. Before using the remote, it is important to remember to press the **Input Selector Button 5** that corresponds to the unit you wish to operate.

The AVR 240's remote is shipped from the factory to operate the AVR 240 and most Harman Kardon CD or DVD players and cassette decks. The remote is also capable of operating a wide variety of other products using the control codes that are part of the remote. Before using the remote with other products, follow the instructions on page 44 to program the proper codes for the products in your system.

It is also important to remember that many of the buttons on the remote take on different functions, depending on the product selected using the Device Control Selectors. The descriptions shown here primarily detail the functions of the remote when it is used to operate the AVR 240. (See pages 45–48 for information about alternate functions for the remote's buttons.)

1 Power Off Button: Press this button to place the AVR 240 or a selected device in the Standby mode.

2 IR Transmitter Window: Point this window toward the AVR 240 when pressing buttons on the remote to make certain that infrared commands are properly received.

3 Program Indicator: This three-color indicator is used to guide you through the process of programming the remote. (See page 44 for information on programming the remote.)

4 Power On Button: Press this button to turn on the power to a device selected by pressing one of the **Input Selectors 5**.

5 Input Selectors: Pressing one of these buttons will perform three actions at the same time. First, if the AVR 240 is not turned on, this will power up the unit. Next, it will select the source shown on the button as the input to the AVR 240. Finally, it will change the remote control so that it controls the device selected. After pressing one of these buttons you must press the **AVR Selector Button 6** again to operate the AVR 240's functions with the remote.

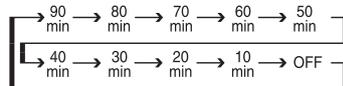
6 AVR Selector: Pressing this button will switch the remote so that it will operate the AVR 240's functions. If the AVR 240 is in the Standby mode, it will also turn the AVR 240 on.

7 AM/FM Tuner Select: Press this button to select the AVR 240's tuner as the listening choice. Pressing this button when the tuner is already in use will select between the AM and FM bands.

8 Dim Button: Press this button to activate the Dimmer function, which reduces the brightness of the front-panel display, or turns it off entirely. The first press of the button shows the default state, which is full-brightness, by indicating **VFD FULL** in the **Lower Display Line 27**. Press the button again within five seconds to reduce the brightness by 50%, as indicated by **VFD HALF** showing in the **Lower Display Line 27**. Press the button again within five seconds and the main display will go completely dark. Note that this setting is temporary, in that regardless of any changes, the display will always return to full brightness when the AVR is turned on. In addition, the **Power Indicator 2** will always remain at full brightness regardless of the setting. This is to remind you that the AVR is still turned on.

9 Test Button: Press this button to begin the sequence used to calibrate the AVR 240's output levels. (See pages 24, 30 and 40 for more information on calibrating the AVR 240.)

10 Sleep Button: Press this button to place the unit in the Sleep mode. After the time shown in the display, the AVR 240 will automatically go into the Standby mode. Each press of the button changes the time until turn-off in the following order:



See page 32 for more information on the Sleep Function. This button is also used to change channels on your TV when the TV is selected.

11 DSP Surround Mode Selector: Press this button to cycle through the DSP, VMaX and Stereo surround modes such as Hall, Theater, VMaX Near and Far, and Surround Off. This button is also used to tune channels when the TV is selected using the device **Input Selector 5**.

12 Night Mode: Press this button to activate the Night mode. This mode is available in specially encoded digital sources, and it preserves dialogue (center channel) intelligibility at low volume levels.

13 Channel Select Button: This button is used to start the process of setting the AVR 240's output levels to an external source. Once this button is pressed, use the **▲/▼ Buttons 14** to select the channel being adjusted, then press the **Set Button 16**, followed by the **▲/▼ Buttons 14** again, to change the level setting. (See pages 30 and 40 for more information.) However, Harman Kardon recommends that you first perform the EzSet+ procedure, as described on pages 24 to 26.

14 ▲/▼ Buttons: These multipurpose buttons are used to change or scroll through items in the on-screen menus, make configuration settings such as digital inputs or delay timing, or to select surround modes. When changing a setting, first press the button for the function or setting to be changed (e.g., press the **DSP Surround Mode Selector 11** to select a sound field mode or the **Digital Select Button 17** to change a digital input) and then press one of these buttons to scroll through the list of options or to increase or decrease a setting. The sections in this manual describing the individual features and functions contain specific information on using these buttons for each application.

15 ◀/▶ Buttons: These buttons are used to change the menu selection or setting during some of the setup procedures for the AVR 240.

16 Set Button: This button is used to enter settings into the AVR 240's memory. It is also used in the setup procedures for delay time, speaker configuration and channel output level adjustment.

17 Digital Select: Press this button to assign one of the digital inputs **18 19 20 26** to a source. (See pages 22 and 36 for more information on selecting digital inputs.)

18 Numeric Keys: These buttons serve as a 10-button numeric keypad to enter tuner preset positions. They are also used to select channel numbers when TV, Cable or SAT has been selected on the remote, or to select track numbers on a CD, DVD or LD player, depending on how the remote has been programmed.

19 Tuner Mode: Press this button when the tuner is in use to select between automatic tuning and manual tuning. When the button is pressed so that **MANUAL** appears in the **Lower Display Line 27**, pressing the **Tuning Buttons 9 21** will move the frequency up or down in single-step increments. When the FM band is in use, pressing this button when a station's signal is weak will change to monaural reception. (See page 39 for more information.)

20 Direct Button: Press this button when the tuner is in use to start the sequence for direct entry of a station's frequency. After pressing the button, simply press the proper **Numeric Keys 18** to select a station. (See page 39 for more information on the tuner.)

21 Tuning Up/Down: When the tuner is in use, these buttons will tune up or down through the selected frequency band. If the **Tuner Mode Button 19/17** has been pressed so that **AUTO** appears in the on-screen display and **Lower Display Line 27**, pressing and holding either of the buttons for three seconds will cause the tuner to seek the next station with acceptable signal strength for quality reception. When **MANUAL** appears in the **Lower Display Line 27**, pressing these buttons will tune stations in single-step increments. (See page 39 for more information.)

22 OSD Button: Press this button to activate the On-Screen Display (OSD) system used to set up or adjust the AVR 240's parameters.

23 Dolby Mode Selector: This button is used to select from among the available Dolby Surround processing modes. Each press of this button will select one of the Dolby Pro Logic II or IIx, or Dolby Virtual Speaker modes or Dolby 3 Stereo. When a Dolby Digital-encoded source is in use, the Dolby Digital mode may also be selected. When the headphones are in use, this button selects from among the Dolby Headphone modes. (See pages 34–35 for the available Dolby surround mode options.)

24 DTS Digital Mode Selector: When a DTS-encoded digital source is selected, each press of this button will scroll through the available DTS modes. The specific choice of modes will vary according to whether or not the source material contains DTS-ES 6.1 Discrete encoding. When a DTS source is not in use, this button has no function. (See page 34 for the available DTS digital options.)

25 Logic 7 Mode Select Button: Press this button to select from among the available Logic 7 surround modes. (See page 34 for the available Logic 7 options.)

26 Skip Up/Down Buttons: These buttons do not have a direct function with the AVR 240, but when used with a compatibly programmed CD or DVD player they will change to the next or previous track.

27 Transport Controls: These buttons do not have any functions for the AVR 240, but they may be programmed for the forward/reverse play operation of a wide variety of CD or DVD players, and audio or video cassette recorders. When the DMP **Bridge** source is in use, these buttons may be used to operate some functions on a compatible iPod® if it is docked in The Bridge. See page 40 for more information on using **Bridge**.

When the remote is used to control the AVR, or the VID2 or VID3 device, by default these buttons are programmed to operate the DVD player. However, you may use the Transport Control Punch-Through feature described on page 46 to program these buttons to operate another device's transport controls when the AVR, VID2 or VID3 has been selected.

28 Stereo Mode Select Button: When the button is pressed so that **SURROUND OFF** appears in the **Lower Display Line 27**, with only the **Surr Off Surround Mode Indicator 28** lit, the AVR will operate in a bypass mode with true, fully analog, two-channel left/right stereo mode with no surround processing or bass management, unlike other modes where digital processing is used. When the button is pressed so that **SURROUND OFF** appears in the **Lower Display Line 27**, with both the **DSP** and **Surr Off Surround Mode Indicators 28** lit, you may enjoy a two-channel presentation of the sound along with the benefits of bass management. Depending on whether your system is configured for 5.1 or 6.1/7.1 channels, the next press of the button will cause either **5 CH STEREO** or **7 CH STEREO** to appear, and the stereo signal will be routed to all five (or seven) speaker channels. (See page 35 for more information on stereo playback modes.)

29 DTS Neo:6 Mode Select: Press this button to select a DTS Neo:6 mode. These modes take a two-channel stereo- or matrix surround-encoded source and create a full five-, six- or seven-channel sound field. (See page 34 for the DTS Neo:6 options.)

30 Macro Buttons: Press these buttons to store or recall a "Macro", which is a preprogrammed sequence of commands stored in the remote. (See page 44 for more information on storing and recalling macros.)

31 Disc Skip Button: This button has no direct function for the AVR 240 but is most often used to change to the next disc in a CD or DVD player when the remote is programmed for that type of device. (See page 45 for more information on using the remote with products other than the AVR 240.)

32 Preset Up/Down: When the tuner is in use, press these buttons to scroll through the stations programmed into the AVR 240's memory. When some source devices, such as CD players, VCRs and cassette decks, are selected using the device **Input Selectors 5**, these buttons may function as Chapter Step or Track Advance.

33 Clear Button: Press this button to clear incorrect entries when using the remote to directly enter a radio station's frequency.

34 Memory Button: Press this button to enter a radio station into the AVR 240's preset memory. First, tune the desired station, and then press this button. Two underline indicators will flash at the right side of the **Upper Display Line 26**, and within five seconds press the **Numeric Keys 18** for the preset number between 01 and 30 that you wish to assign to the station. (See page 39 for more information.)

35 Delay/Prev Ch.: Press this button to begin the process for setting the delay times used by the AVR 240 when processing surround sound. After pressing this button, the delay times are entered by pressing the **Set Button 16** and then using the **▲/▼ Buttons 14** to select **A/V SYNC DELAY** or the delay setting for any available channel. Press the **Set Button 16**, and then use the **▲/▼ Buttons 14** to change the setting. Press the **Set Button 16** again to complete the process. (See page 29 for more information.) However, Harman Kardon recommends that you first perform the EzSet+ procedure, as described on pages 24–26.

36 Speaker Select: Press this button to begin the process of configuring the AVR 240's bass management system for use with the type of speakers used in your system. Once the button has been pressed, use the **▲/▼ Buttons 14** to select the channel you wish to set up. Press the **Set Button 16** and then use the **▲/▼ Buttons 14** to select the appropriate speaker size. Press the **Set Button 16** to enter the new setting, and then use the **▲/▼ Buttons 14** again to select another channel to configure. When all adjustments have been completed, press the **Set Button 16** twice to exit the settings and return to normal operation. (See page 27 for more information.) However, Harman Kardon recommends that you first perform the EzSet+ procedure, as described on pages 24–26.

37 Spare Button: This button has no direct function for the AVR 240, but may be used by other devices.

38 Volume Up/Down: Press these buttons to raise or lower the system volume. By default, the **Volume Up/Down Buttons 38** are programmed at the factory to control the AVR 240's volume, no matter which source device has been selected (except TAPE). You may reprogram these buttons to control the volume of another device, such as your TV, using the Volume Control Punch-Through instructions found on page 46.

39 TV/Video Selector: This button does not have a direct function on the AVR 240, but when used with a compatible VCR, DVD or satellite receiver, pressing this button will switch between the output of the device and the external video input. Consult the owner's manual for your specific player or receiver for the details of how it implements this function.

REMOTE CONTROL FUNCTIONS

40 The Bridge™ Digital Media Player (DMP) Selector:

When Harman Kardon's The Bridge™ (optional) is connected to The Bridge™ Digital Media Player (DMP) Connector **24** and a compatible iPod® is docked in The Bridge™, pressing this selector will select the iPod as the audio source input device for the AVR 240. In addition, if a video display is connected to one of the Video Monitor Outputs **22/32**, the iPod's messages will appear on screen, and in the Upper and Lower Display Lines **26/27**. The ▲/▼/◀/▶ Buttons **14/15**, the Set Button **16** and the Transport Controls **27** may be used to navigate the iPod and to operate many functions. See page 40, and the manuals for The Bridge and your iPod for more information.

41 6-Channel/8-Channel Direct Input: Press this button to select the device connected to the 6/8-Channel Direct Inputs **29**. (See page 32 for more information.)

When the device connected to the 6/8-Channel Direct Input **29** is also a video source, such as a DVD or DVD-Audio player with an onboard audio decoder, you must first select that video source by pressing its Input Selector **5**, then press this button to choose the device connected to the 6/8-Channel Direct Input **29** as the audio source. Note that if you desire, you may select any video source to be used in conjunction with the 6/8-Channel Direct Input **29** as the audio source.

42 Mute: Press this button to momentarily silence the AVR 240 or TV set being controlled, depending on which device has been selected. When the AVR 240 remote is being programmed to operate another device, this button is pressed with the Input Selector Button **5** to begin the programming process. (See page 44 for more information on programming the remote.)

System Installation

After unpacking the unit, locating it in a place with adequate ventilation 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.

IMPORTANT NOTE: For your personal safety and to avoid possible damage to your equipment and speakers, it is always a good practice to turn off and unplug the AVR and ALL source equipment from the AC outlet before making any audio or video system connections.

Audio Equipment Connections

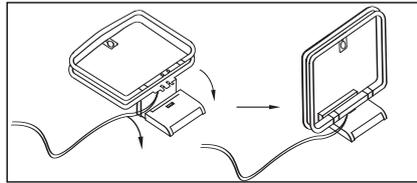
We recommend that you use high-quality interconnect cables when making connections to source equipment and recorders to preserve the integrity of the signals.

1. Connect the analog outputs of a CD player to the **CD Audio Inputs 2**.

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 it is distorted.

2. Connect the analog Play/Out jacks of a cassette deck, MD, CD-R or other audio recorder to the **Tape Input Jacks 4**. Connect the analog Record/In jacks on the recorder to the **Tape Output Jacks 3** on the AVR 240.
3. Connect the 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 Audio Inputs 21, 26, 18, 19**. We recommend connecting the coaxial digital audio output of your DVD player to the **Coax 1 Digital Audio Input 19**, since that digital input is assigned to the DVD source by default. The Video 2/Cable/Sat source defaults to the **Optical 1 Digital Audio Input 26**. If your cable television set-top box or satellite receiver is equipped with an optical digital audio output, we recommend that you connect it to this input to obtain the benefits of higher-quality digital audio (such as PCM, Dolby Digital 2.0 or Dolby Digital 5.1 signals when broadcast by your cable or satellite provider).
4. Connect the **Coaxial or Optical Digital Audio Outputs 19, 20** on the rear panel of the AVR 240 to the matching digital input connections on a CD-R or MiniDisc or other digital recorder.

5. Assemble the AM Loop Antenna supplied with the unit so that the tabs at the bottom of the antenna loop snap into the holes in the base. Connect it to the **AM Antenna Terminals 39**.



6. Connect the supplied FM antenna to the **FM (75-ohm) Connection 1**. The FM antenna may be an external roof antenna, an inside powered or wire-lead antenna or a connection from a cable TV system. If the antenna or connection uses 300-ohm twin-lead cable, you must use an optional 300-ohm-to-75-ohm adaptor to make the connection.

7. With the AVR 240 turned off, connect the optional Harman Kardon **Bridge** to **Bridge**: **Digital Media Player (DMP) Connector 24**. Your compatible iPod® may be docked in **Bridge** when you wish to use it as an audio source device. Video materials stored on the iPod may not be viewed via **Bridge**.

8. Connect the front, center, surround and surround back speaker outputs **9, 10, 11, 11** to the respective speakers.

To ensure 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 multistrand copper with a gauge of 14 or smaller. Remember that in specifying cable, the lower the number, the thicker the cable.

Cable with a gauge of 16 may be used for short runs of less than 10 feet. We do not recommend that you use cables with an AWG equivalent of 18 or higher, 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 UL, CSA or other 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 NEC and/or the applicable local building codes in your area.

When connecting wires to the speakers, observe proper polarity. Note that the positive (+) terminal of each speaker connection may carry a specific color code, as noted on page 8. However, many speakers still use a red terminal for the positive (+) 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 may vary from this configuration. To ensure 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 240.

9. Connections to a subwoofer are normally made via a line-level audio connection from the **Subwoofer Output 8** 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 subwoofers. 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 multichannel audio source with 5.1, 6.1 or 7.1 outputs such as an external digital processor/decoder, DVD-Audio or SACD player is used, connect the outputs of that device to the **6/8-Channel Direct Inputs 29**.

Video Equipment Connections

Video equipment is connected in the same manner as audio components. The use of high-quality interconnect cables is recommended to preserve signal quality.

1. Connect a VCR's, DVD recorder's, personal video recorder's or other video source's audio and video Play/Out jacks to the **Video 1 Audio/Video** and/or **S-Video Input Jacks 25, 34** on the rear panel. The Audio and Video Record/In jacks on the recorder should be connected to the **Video 1 Audio/Video** and/or **S-Video Output Jacks 27, 35** on the AVR 240. Although any video device may be connected to these jacks, we recommend connecting your video recorder to take advantage of the fact that the remote control is preprogrammed with video recorder product codes for the Video 1 device.

INSTALLATION AND CONNECTIONS

2. Connect the analog audio and video outputs of a satellite receiver, cable TV converter, television set or any other video source to the **Video 2 Audio/Video and S-Video Input Jacks 23/36**. Although any video device may be connected to these jacks, we recommend connecting your cable TV converter or satellite receiver to take advantage of the fact that the remote control is preprogrammed with the product codes of these device types for the Video 2 device.

3. Connect the analog audio and video outputs of a television or other video device to the **Video 3 Audio and Video Input Jacks 31/33** on the rear panel. Although any video or audio device may be connected to these jacks, we recommend connecting your television so that you may take advantage of the fact that the remote control is preprogrammed with TV product codes for the Video 3 device.

Important: If you are only using the television as a display device (i.e., if you receive your TV programs through a cable box or satellite receiver), do not connect the television's outputs to the **Video 3 Audio/Video and S-Video Input Jacks 31/33**, or to any other inputs on the AVR 240.

4. Connect the analog audio and video outputs of a DVD or laser disc player to the **DVD Audio/Video and S-Video Inputs 23/33**.

5. Connect the digital audio outputs of a DVD player, satellite receiver, cable box or HDTV converter to the appropriate **Optical or Coaxial Digital Inputs 21/26/18/19**. Remember that the DVD source defaults to the **Coaxial 1 Digital Input 19**, and the Video 2/Cable/Sat source defaults to the **Optical 1 Digital Audio Input 26**. All other sources default to their analog inputs, although any source may be assigned to any digital audio input on the receiver.

NOTE: When connecting 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; it will automatically switch the audio input to the analog jacks if the digital feed is interrupted or unavailable for a particular channel.

6. Connect the **Video and/or S-Video Monitor Output 22/32** jacks on the receiver to the composite or S-video input of your TV monitor or video projector.

7. If both your video display monitor and at least one video source device, such as a DVD player or HDTV set-top box, is equipped with component video capability, then you may connect the compo-

nent video outputs of the device to one of the two **Component Video Inputs 14/15**.

It is recommended that you connect a DVD player or a digital recorder to the **Component Video 1 Inputs 14**, as this input is assigned to the DVD, CD, Tuner and Tape sources by default. Thus, whenever any of these sources is selected, you may view the component video output of the device connected to the **Component Video 1 Inputs 14**, enabling you to view and listen to different sources.

Similarly, it is recommended that you connect any other audio/video device, equipped with component video outputs, such as a DVD-Audio or SACD player or HDTV set-top box, to the Video 1, Video 2 or Video 3 sources, or the 6-/8-channel direct inputs, as the **Component Video 2 Inputs 15** are assigned to the Video 1, Video 2, Video 3 and 6-/8-channel source audio inputs by default.

However, you may connect any component video source to either set of component video inputs, as they are assignable to any source. You will still need to connect either the analog or digital audio outputs, or the 6-/8-channel audio outputs, of your component video device to the analog audio inputs corresponding to the source (such as DVD or Video 2 for a cable converter box), or to any of the **Optical or Coaxial Digital Audio Inputs 21/26/18/19**.

8. If the component video inputs are used, connect the **Component Video Monitor Outputs 13** to the component video inputs of your TV, projector or display device.

9. 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 **Video 4 Inputs 18/19/20/21** on the front panel. A device connected here is selected as the Video 4 input, and the digital inputs must be assigned to the Video 4 input. (See page 20 for more information on input configuration.)

NOTE: The AVR 240 is shipped with two covers that may be installed over the front-panel input jacks when they are not in use.

VIDEO CONNECTION NOTES:

- When the component video jacks are used, the on-screen menus are not visible and you must switch to the standard composite or S-video input on your TV to view them.
- The AVR 240 will accept either standard composite, S-video or Y/Pr/Pb component video signals. However, it will not convert any of these signals to a different format.

- When source devices such as a progressive scan DVD player or an HDTV set-top box are connected to the AVR 240 via component video connections, if you wish to take advantage of the record outputs, it is also necessary to connect the standard, composite or S-video outputs of the source device to the AVR 240. The record outputs cannot accept component inputs, nor are component inputs down-converted for use with the record outputs.

- When connecting a video source to the AVR 240, you may use either composite, component or S-video, but only one type of video may be connected for each device.

- When more than one video format is used, it is necessary to make a separate connection from the AVR to your video display for each format. For example, if both composite and component sources are connected to the AVR 240, both the **Composite and Component Video Monitor Outputs 13/32** must be connected to the appropriate inputs on your video display.

System and Power Connections

The AVR 240 is designed for flexible use with external control components.

Remote Infrared (IR) Control of the AVR or Source Devices

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, an optional remote sensor may be used. Connect the output of the remote sensor to the **Remote IR Input 5** jack.

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 6** jack to the Remote IR Input jack on Harman Kardon or other compatible equipment.

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.

AC Power Connections

This unit is equipped with two accessory AC outlets. They may be used to power accessory devices, but they should not be used with high-current-draw equipment such as power amplifiers. The total power draw to each outlet may not exceed 100 watts.

The **Switched AC Accessory Outlet 17** will receive power only when the unit is on. 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 a 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 **Unswitched AC Accessory Outlet 18** will receive power as long as the unit is plugged into a powered AC outlet.

Once the **AC Power Cord 16** is connected, you are almost ready to enjoy the AVR 240's incredible power and fidelity!

SYSTEM CONFIGURATION

When all audio, video and system connections have been made, the final steps before listening to your new AVR are to make the configuration adjustments that tailor the unit to the other components in your system as well as to accommodate your personal listening preferences. A few minutes spent to correctly calibrate and configure your system will greatly add to your listening pleasure.

Speaker Selection and Placement

While the most seamless surround sound reproduction comes from the use of speakers with identical or carefully matched driver elements at each position, no matter which brand or type of speakers you prefer, it is always best to use the same model or series for the left front, center and right front speakers. Similarly, it is also desirable to use the same model or series for the surround speakers. This ensures that the soundstage will be relatively seamless and it eliminates the possibility of sonic discordance when a sound moves from one side of the room to the other.

Speaker Placement

Once you have selected your speakers, it is important that they be placed in positions that enable them to do the best job of reproducing the sound as it was meant to be heard, regardless of the program content. Particularly in multichannel 5.1, 6.1 or 7.1 systems, the placement of speakers can have a noticeable impact on the accuracy of the surround process.

When placing your speakers in a listening room, picture an imaginary circle starting at the center of your video screen that arcs around the room with the prime listening position, or "sweet spot," at the center of the circle. Depending on the number of speakers in your system, there is a recommended placement along the circle for each speaker, though the specific construction of your room, taking into account the available walls, bookcases, or floor space at which the speakers may be placed will obviously have some impact on where the speakers are ultimately located. As a general rule, try to place all speakers so that they are positioned at the same height as your ears when you are seated at the prime listening position.

Use the following suggestions as a guide, and make the changes needed to fit the speakers to your room. Don't be afraid to experiment a bit until you find the right combination of locations that works for you. At the end of the day, there is no real "right" or "wrong" place to put the speakers; work to optimize their locations so that audio moves across the front of the room smoothly, without seeming to jump from one speaker to another.

Center Channel Speaker

The ideal location for the center channel speaker is at "0 degrees" in our circle, directly in front of the prime listening position. Place the center channel speaker as

close to the top (or bottom) of the video screen as possible so that when you position the front left/right speakers the tweeters of all three front channel speakers are within 24" of one another.

Front Left/Right Speakers

The recommended placement for front left/right speakers is at the 30-degree position with reference to the center channel speaker. The distance between them should be about the same as the distance from the center channel speaker to the prime listening position.

Although the natural tendency is to place the speakers so they are parallel to the wall behind them, and thus in line with the video screen, the preferred placement is to angle the speakers slightly ("toe in") so that they point at the prime listening position.

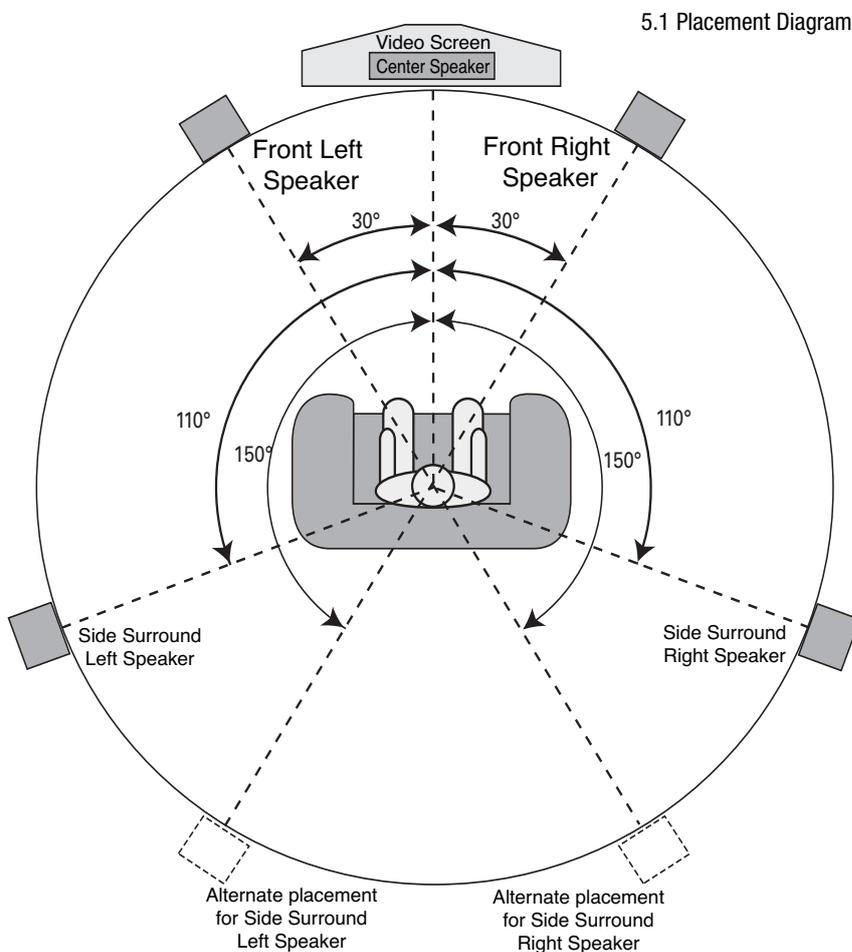
Surround Speakers for 5.1 Systems

In a 5.1 surround system, an additional pair of left/right speakers is added. Although many believe that these speakers should be placed at the rear of the room, the preferred position for them is at the sides of the room, with rear placement a second

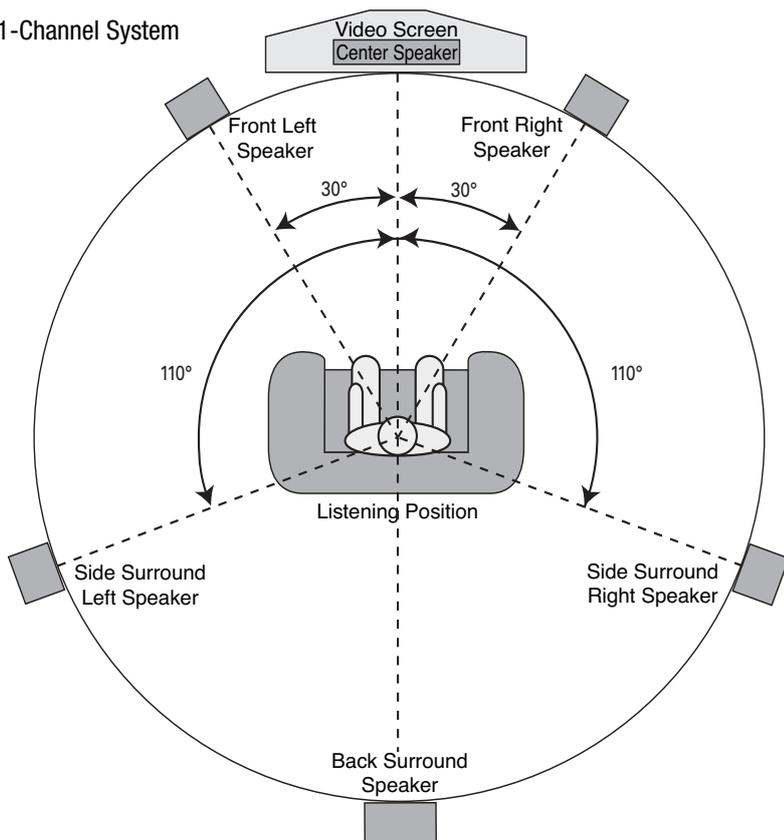
option when room conditions prevent the use of side-mounted surround speakers.

When side-wall placement is possible, place the left/right surround speakers at a point that is 110 degrees along our circle from the center of the video screen. This translates to placing them to the side and slightly behind your preferred listening position. If possible, angle the speakers in slightly so that they are pointing toward the listener's ears.

If it is not possible to place the surround speakers at the sides of the room, the alternate position is at the back of the room, at a spot that is about 150 degrees around our circle from the center of the video screen. Another way to spot the optimal, alternate rear-wall mounting position is to place the left surround speaker on the back wall so that it points directly at the front right speaker, and to have the right surround speaker point directly at the front left speaker. If possible, aim the surround speakers so that they point "in" toward the listening area, rather than perpendicular to the walls.



6.1-Channel System



Surround Speakers for 6.1 Systems

A 6.1 surround speaker adds an additional center back surround speaker to the system, enabling you to enjoy the benefits of advanced surround modes such as Dolby Digital EX, DTS-ES and Harman Kardon's proprietary Logic 7/7.1 processing.

To step up to a 6.1 system, first place the speakers for a 5.1 system, as shown on page 18. The "sixth" speaker should ideally be placed at the center of the room's rear wall, pointing directly toward the front center channel speaker.

NOTE: The 6.1-channel configuration is not recommended for the AVR 240. We strongly recommend a 7.1-channel installation as described below. When 6.1-channel materials are played through a 7.1-channel system, the same surround back channel information is played through both the left and right surround back speakers.

If you are only able to install a single surround back speaker at this time, you will not be able to run the full EzSet+ 7.1-channel calibration procedure. In that case, we suggest you install all of your speakers except the surround back speaker, and run the EzSet+ procedure for a 5.1-channel system (see page 24). After EzSet+ has finished, connect the single surround back speaker to the **left Surround Back Speaker Outputs** 10. Then follow the instructions

starting on page 26 for manual setup to manually configure your surround back speaker.

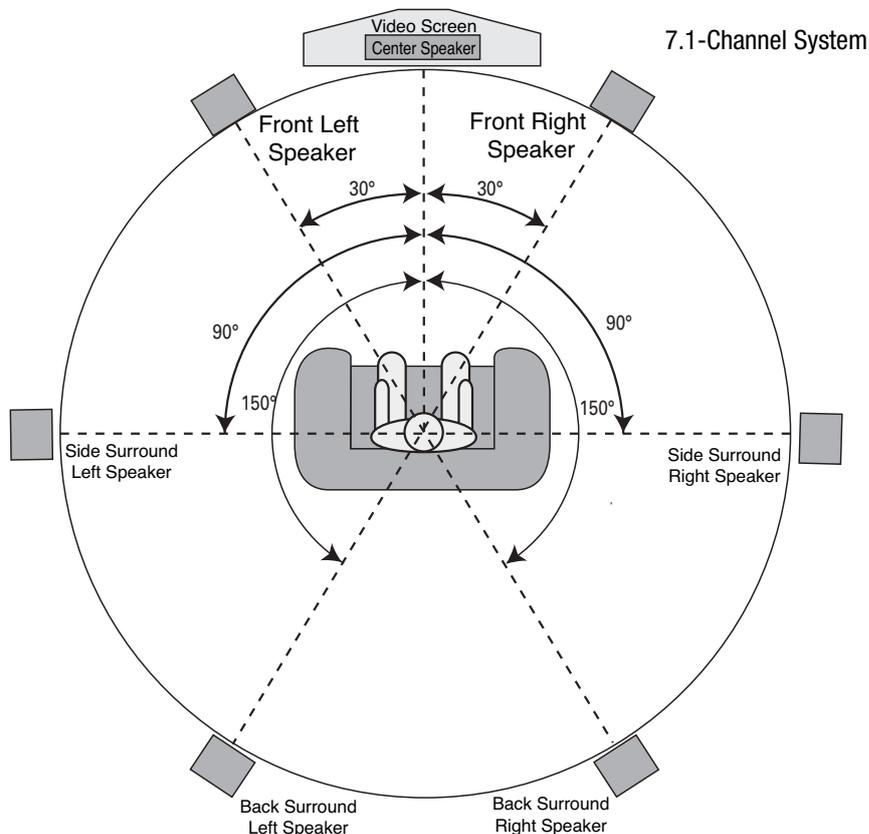
We recommend that you consider adding a second surround back speaker as soon as possible.

Surround Speakers for 7.1 Systems

For the ultimate home theater experience, a 7.1 surround system uses both traditional surround left/right channels and a surround back left/right speaker pair. In a 7.1 system, the front left/center/right speakers remain in the same place as they would be for a 5.1 or 6.1 system, but due to the number of speakers involved, the placement of the surround speakers is different.

In a 7.1 system, you should place the main surround left/right speakers at the 90-degree point on our circle. A good way to visualize proper surround speaker positioning for 7.1 is to place the speakers directly to the left and right of the ears of someone sitting in the prime listening spot. The two speakers should ideally face toward each other.

The additional set of Surround Back Left/Right speakers is placed at about 150 degrees on the circle, pointing inward toward the listening area. The easiest way to visualize the placement of these speakers is to place the surround back left speaker directly opposite the right front speaker and to place the surround back right speaker directly opposite the left front speaker.



SYSTEM CONFIGURATION

Since subwoofers produce nondirectional sound, 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 six inches from a wall, or near the front corner of the room. Another method is to temporarily place the subwoofer at your normal listening position, 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.

NOTES ON SPEAKER PLACEMENT:

1. The limitations of your listening room, including the placement of walls and furniture, may make it difficult to follow the speaker placement suggestions shown above. Depending on the specific layout of the room, here are some ways to compensate for unusual conditions:
 - Try to follow the suggested placement, but move the speakers within a few feet from the preferred locations.
 - Regardless of where they are placed, always try to make certain that the main surround speakers are the same distance from the front speakers. (For example, try not to have the right surround speaker further back into the room than the left surround speaker.)
 - If it is not possible to wall-mount or place speakers on a shelf, consider the use of optional floor stands, available for many speakers.
2. When using ceiling-mounted in-wall speakers, follow the same guidelines shown for conventional floor or shelf-mounted speakers.

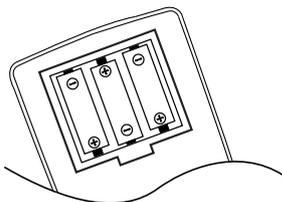
System Setup

Once the speakers have been placed in the room and connected, the remaining steps in the setup process are to configure each source input to match the physical connections you have made, select a surround mode and run the EzSet+ procedure, which will automatically program the AVR 240's bass management system for the type of speakers used in your system, calibrate the output levels, and set the delay times used by the surround sound processor.

You are now ready to power up the AVR 240 to begin these final adjustments.

1. Make certain that the **AC Power Cord 16** is firmly inserted into an unswitched AC outlet. To maintain the unit's safety rating, DO NOT replace the power cord with one that has a lower current capacity.

2. Press the **Main Power Switch 1** in until it latches and the word "OFF" on the top of the switch disappears inside the front panel. Note that the **Power Indicator 2** will turn amber, indicating that the unit is in the Standby mode.
3. Remove the protective plastic film from the front-panel lens. If left in place, the film will affect the performance of your remote control.
4. Install the three 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 240 on either by pressing the **Standby/On Switch 2** on the front panel, or via the remote by pressing the **Power On Button 4**, the **AVR Selector 6** or any of the **Input Selectors 4 5 7**. When the unit is turned on, the entire list of options will briefly light for both the **Input Indicators 24** and the **Surround Mode Indicators 23**. After a few seconds, the majority of those indicators will go dark, leaving only the indications for the active surround mode and input illuminated. The **Display Lines 26/27** will display the unit's status, the **Power Indicator 2** will turn blue, and the accent light inside the **Volume Control 23** will also light up to remind you that the unit is turned on.

Using the On-Screen Display

When making the following adjustments, you may find it easier to use the AVR 240's on-screen display system. These easy-to-read displays give you a clear picture of the current status of the unit and make it easy to see which selection you are making.

To view the on-screen menus, make certain that you have made a connection from the **Video** or **S-Video Monitor Out Jack 22/22** on the rear panel to the composite or S-video input of your TV or projector. In order to view the AVR 240's displays, the correct video source must be selected on the video display. The on-screen menus are not available when a component video display is in use.

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. The constant display of a static image such as

these menus or other still images may cause the image to be permanently "burned into" the projection tubes, plasma screen or CRT. This type of damage is not covered by the AVR 240 warranty and may not be covered by the projector/TV set's warranty.

The AVR 240 has two on-screen display modes, "Semi-OSD" and "Full-OSD." When making configuration adjustments, it is recommended that the full-OSD mode be used. This will place a menu on the screen, making it easier to view the available options.

Making Configuration Adjustments

The full-OSD system is available by pressing the **OSD Button 22**. When this button is pressed, the **MASTER MENU** (Figure 1) will appear, and adjustments are made from the individual menus.

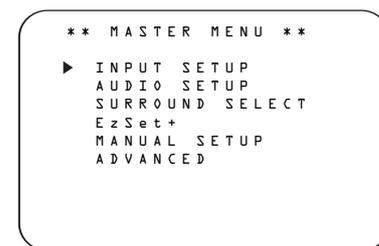


Figure 1

The semi-OSD system is also available, allowing you to make adjustments directly, by pressing the appropriate buttons on the front panel or remote control for the specific parameter to be adjusted. For example, to change the digital input for any of the sources, press the **Digital Select Button 17** and then press the **▲/▼ Buttons 14** to scroll through the list of options as they appear in the on-screen display or the **Upper Display Line 26**.

To use the full-OSD menu system, press the **OSD Button 22**. When the menu is on the screen, press the **▲/▼ Buttons 14** until the on-screen ► cursor is next to the item you wish to adjust, and then press the **Set Button 16** to adjust that item. The menu will remain on the screen for 20 seconds, and then they will "time-out" and disappear from the screen. The time-out may be increased to as much as 50 seconds by going to the **ADVANCED SELECT** menu, and changing the item titled **FULL OSD TIME OUT** (see page 42).

When the full-OSD menu system is used, **OSD ON** will appear in the **Upper Display Line 26** to remind you that a video display must be used. When the semi-OSD system is used in conjunction with the discrete configuration buttons, the on-screen display will show the current menu selection. That selection will also be shown in the **Upper Display Line 26** or the **Lower Display Line 27**, depending on which parameter is being adjusted.

Setting the System Configuration Memory

The AVR 240 features an advanced memory system that enables you to establish different configurations depending on the input source or the surround mode. This flexibility enables you to customize the way in which you listen to various types of program materials and have the AVR 240 memorize those settings. This means, for example, that if you mostly use your DVD player for watching movies, you may configure your DVD source to default to a particular digital input and surround mode each time you select it, optimizing your home theater for cinematic materials. Once these settings are made, they will automatically be recalled whenever you select that input.

In addition to the previously mentioned settings, which always vary with the input, you may also choose to set different speaker size configurations for each input. In most cases, this is not required; thus the factory default keeps these settings the same for all inputs. However, should you wish to have these settings change for any one, or all, inputs, follow the instructions shown on page 27 to select the Independent mode for speaker configuration.

The first time you use the AVR 240, we recommend that you take advantage of the simplicity of configuring the system using the EzSet+ 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+ procedure, there are a few adjustments that need to be made to ensure accurate results.

The factory default settings for the AVR 240 have all inputs configured for an analog audio input except for the DVD input, where the **Coaxial Digital Audio Input 1** **21** is the default, and the Video 2 input, where the **Optical Digital Audio Input 1** **25** is the default. The default speaker settings are for "Small" at all positions, and the subwoofer on.

The default surround mode setting for all sources using an analog input is the Logic 7 Music mode. Dolby Digital or DTS will always be automatically selected any time a source with digital encoding in that format is in use. When a Dolby Digital 2.0 source is detected, the AVR 240 will automatically add Dolby Pro Logic II or IIx processing. Once a surround mode is selected for a particular source, the AVR 240 will default to that surround mode the next time the source is selected, unless the input signal is in a Dolby Digital or DTS digital format. For Dolby Digital and DTS materials, the AVR 240 will default to the surround mode encoded in the bitstream. As explained on pages 37–38, you may select from a limited number of other surround modes for these materials. If you wish to have the AVR 240 default to one of these alternate surround modes each time a Dolby Digital or DTS

source is encountered, you may use the Default Surround Mode setting in the **ADVANCED SELECT** submenu (see page 39).

Before using the unit, you will probably want to program the settings for most inputs so that they are properly configured to reflect the use of digital or analog audio inputs, component video inputs and the surround mode specifics of your home theater system. Remember that since the AVR 240 memorizes these settings for each input independently, you will need to make some of these adjustments for each input used. However, once they are made, further adjustment is only required when system components are changed.

To make this process as quick and easy as possible, we suggest that you use the full-OSD system with the on-screen menus, and step through each input. It is also a good idea to set the configuration data in the order these items are listed in the **MASTER MENU**, as some settings require a specific entry in a prior menu item. It is recommended that you record your settings for each input using the worksheets in the appendix to this manual, in the event there is a power loss or if you need to reenter the settings for some other reason.

Input Setup

The first step in configuring the AVR 240 is to configure each input. Once an input is configured, all settings for the Digital Input, Component Video Input and Surround Mode will "attach" themselves to that input and be stored in a nonvolatile memory. The later selection of that input will automatically recall those settings. For that reason, the procedures described below must be repeated for each input source so that you have the opportunity to customize each source to your specific listening requirements. However, once made, they need not be changed again unless you need to alter a setting.

When using the full-OSD system to make the setup adjustments, press the **OSD Button** **22** once so that the **MASTER MENU** (Figure 1) appears. The ► cursor will be next to the **INPUT SETUP** line. Press the **Set Button** **16** to enter the menu and the **INPUT SETUP** menu (Figure 2) will appear on the screen. Press the ◀▶ **Buttons** **15** until the desired input name appears on the first line, as well as being indicated in the front-panel **Input Indicators** **24**. If the input will use the standard left/right analog inputs and will not use component video, no further adjustment is needed.

NOTE: The **DIGITAL IN** line will default to **COAXIAL 1** when the DVD input is selected. Similarly, when the Video 2 input is selected, the **DIGITAL IN** line will default to **OPTICAL 1**.

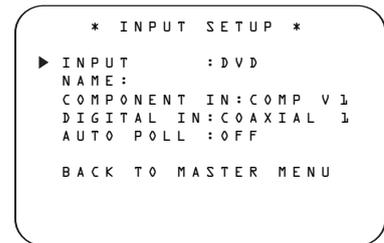


Figure 2

The AVR 240 offers you the opportunity to rename any source (except the tuner) to customize it for your particular equipment configuration – e.g. to designate the source input to which you have connected a VCR, or a DVD-Audio player. This name will appear in the **Upper Display Line** **26** and in the on-screen display whenever that source input is selected. If you wish to rename a source, press the ▼ **Button** **14** until the ► cursor is pointing to the **NAME :** line. Press the **Set Button** **16**. A flashing box will appear. Press the ▲ **Button** **14** to scroll through the letters of the alphabet first in upper case, then in lower case, then the numerals 0 through 9, and then followed by the symbols ! ' () * + , - . / ; < = > ? [] and then a blank space. Use the ▼ **Button** **14** to scroll in the reverse order. Use the ◀▶ **Buttons** **15** to move from one character to the previous or following character. You may create a name of up to 14 characters, including spaces. Press the **Set Button** **16** when you have finished entering the name, and then press the ▼ **Button** **14** to proceed to the next setting.

If your system includes any sources that are equipped with Y/Pr/Pb component video outputs, the AVR 240 is able to switch them to send the proper signals to your video display. Each of the two **Component Video Inputs** **14** **15** may be assigned to a source for added system flexibility. The **Component Video 1 Input** **14** may be assigned to any one of the DVD, Tuner, CD or Tape inputs. The **Component Video 2 Input** **15** may be assigned to any one of the Video 1 (VCR), Video 2 (Cable/Sat), Video 3 (TV) or 6/8-Channel Direct inputs. If your system does not include component video at this time, or if you do not need to change these defaults, press the ▼ **Button** **14** to go to the next setting.

To change the Component Video assignment, first make certain that the cursor is pointing to the **COMPONENT IN** line on the menu screen, and then press the ◀▶ **Buttons** **15** until you see the desired input. When the desired component video input has been selected, press the ▼ **Button** **14** to go to the next setting.

If you wish to associate one of the digital inputs with the selected input source, press the ▼ **Button** **14** on the remote while the **INPUT SETUP** menu

SYSTEM CONFIGURATION

(Figure 2) is on the screen, and the on-screen cursor will drop down to the **DIGITAL IN** line. Press the **◀/▶** Buttons **15** until the name of the desired digital input appears. To return to the analog input, press the buttons until the word **ANALOG** appears. When the correct digital input jack appears, press the **▼** Button **14** once so that the **▶** cursor appears next to **BACK TO MASTER MENU**, and press the **Set Button 16**.

To change the digital input at any time using the discrete function buttons and the semi-OSD system, press the **Digital Select Button 17** on the remote. Within five seconds, make your input selection using the **▲/▼** Buttons **14** until the desired digital or analog input is shown in the **Upper Display Line 26** and in the lower line of the on-screen display. Press the **Set Button 16** to enter the new digital input assignment.

Some digital video input sources, such as a cable box or HDTV set-top, may change between analog and digital outputs, depending on which channel is in use. The AVR 240's Auto Polling feature allows you to avoid losing the audio feed when this happens by automatically searching both analog and digital connections for a signal. Digital audio is the default, and the unit will automatically switch to the analog audio if the digital audio stream stops.

In cases where only a digital source is used, such as for a DVD player, you may wish to disable the Auto Polling feature to prevent the AVR from trying to "find" an analog source when the digital source is paused. To turn Auto Polling off for any input, first make certain that the **▶** cursor is pointing to the **AUTO POLL** line on the menu screen. Next, press the **◀/▶** Buttons **15** so that **OFF** appears. To restore the Auto Polling feature, repeat the procedure at any time so that **ON** appears.

When DMP™ **Bridge** has been selected as the source input, an additional line will appear in this menu that lets you select whether you wish to allow your iPod to continue charging while docked in **Bridge** when the AVR 240 is turned off and placed in Standby mode. To make your selection, press the **▲/▼** Buttons **14** until the **▶** cursor is next to the line reading **RECHARGE IN ST-BY**. Press the **◀/▶** Buttons **15** until the word **YES** appears if you wish charging to continue, and the blue lighting on The Bridge will remain lit when the AVR 240 is in Standby mode to indicate that charging is taking place. The default setting is **NO**, in which the docked iPod will not continue to charge when the AVR 240 is turned off, even though **Bridge** remains connected to the AVR.

When all needed adjustments have been made, press the **▼** Button **14** until the **▶** cursor is next to **BACK TO MASTER MENU** to continue with the system configuration.

Audio Setup

This menu allows you to configure the tone controls. If you do not wish to change those settings at this time, proceed to the next menu screen. However, to make configuration changes to those parameters, make certain that the **MASTER MENU** (Figure 1) is on screen with the **▶** cursor pointing to the **AUDIO SETUP** line, and press the **Set Button 16**. The **AUDIO SETUP** menu (Figure 3) will appear.

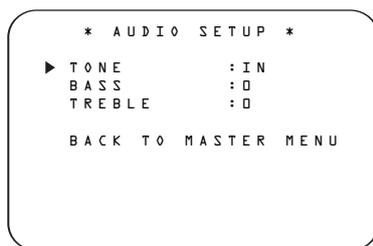


Figure 3

The first line controls whether or not the bass/treble tone controls are in the signal path. The normal default is for them to be in-line, but if you wish to remove them from the circuit for "flat" response, first make certain that the **▶** cursor is pointing to the **TONE** line on the menu and press the **◀/▶** Buttons **15** so that **OUT** appears.

If you wish to leave the tone controls in the signal path, make sure that **IN** appears on the **TONE** line, using the **◀/▶** Buttons **15** to adjust this setting if necessary. The amount of boost or cut for bass and treble may be adjusted by up to ± 10 dB, in 2dB increments, by pressing the **▲/▼** Buttons **14** so that the **▶** cursor is next to **BASS** or **TREBLE** depending on which setting you wish to adjust. Next, press the **◀/▶** Buttons **15** until the desired setting is shown.

When all desired changes have been made on this menu, press the **▼** Button **14** so that the **▶** cursor is next to the **BACK TO MASTER MENU** line; press the **Set Button 16**.

Surround Setup

The next step is to set the surround mode you wish to use with the input that was previously selected in the **INPUT SETUP** menu. Since surround modes are a matter of personal taste, feel free to select any mode you wish – you may change it later. However, to make it easier to establish the initial parameters for the AVR 240, it is best to select Dolby Pro Logic II or Logic 7 for most analog inputs. In the

case of inputs such as a CD Player, Tape Deck or Tuner, you may wish to set the mode to Stereo ("Surround Off") as they are not typically used with multichannel program material, and it is unlikely that surround-encoded material will be used. Alternatively, the Logic 7 Music mode is a good choice for stereo-only source material. See pages 34–35 for more information on available surround modes.

When selecting surround modes for digital program material, the AVR 240 will always examine the data stream and automatically select Dolby Digital or DTS as applicable.

IMPORTANT NOTES:

- You will not be able to access any of the Dolby Digital or DTS Digital modes unless a source signal in that format is present. Thus, in order to make adjustments to the output levels and delay settings (if available) for these modes, you will need to play a source in that format, such as a DVD.
- You will not be able to access any of the 6.1- or 7.1-channel modes; such as Dolby Digital EX, DTS Neo:6 (6CH), 7-channel Stereo and Logic 7/7.1; unless the AVR 240 has been configured for 6.1-/7.1-channel operation by setting the surround back speaker channels to **SMALL** or **LARGE** using the **SPEAKER SIZE** submenu, which is accessed from the **MANUAL SETUP** submenu. See page 27 for more information. Note that the AVR 240 is configured for 6.1/7.1 operation by default.

It is easiest to complete the surround setup using the full-OSD on-screen menus, although you may also use the remote control buttons for each mode group (see pages 12–13). From the **MASTER MENU** (Figure 1), press the **▲/▼** Buttons **14** until the **▶** cursor is next to the **SURROUND SELECT** line. Then press the **Set Button 16** until the **SURROUND SELECT** submenu (Figure 3) is on the screen.

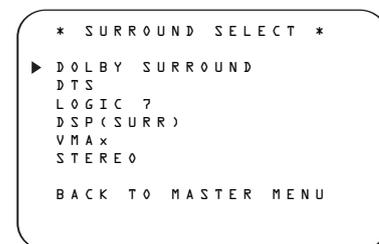


Figure 4

Each of the option lines on this menu (Figure 4) selects the surround mode category, and within each of those categories there will be a choice of the specific mode options. The choice of modes will vary according to the speaker configuration in your

system. When the **SURR BACK** line of the **SPEAKER SIZE** submenu (Figure 12 on page 27) is set to **NONE**, the AVR 240 will be configured for 5.1-channel operation, and only the modes appropriate to a five-speaker system will appear. When the **SURR BACK** line of the **SPEAKER SIZE** submenu (Figure 12) is set to **SMALL** or **LARGE** the AVR 240 will be configured for 6.1/7.1-channel operation, and additional modes such as Dolby Digital EX and DTS-ES will appear, as they are only available when six main speakers are present. In addition, some of the modes available in the AVR 240 will not appear unless a digital source is selected and is playing the correct bitstream. Remember that when 6.1-channel program material is playing, the same information will be heard through both of the surround back speakers.

To select the mode that will be used as the initial default for an input, first press the **▲/▼ Buttons 14** until the on-screen cursor is next to the desired mode's master category name, such as **DOLBY SURROUND**, **DTS**, **LOGIC 7**, **DSP (SURR)**, **VMAx** or **STEREO**. Next, press the **Set Button 16** to view the submenu. Press the **◀▶ Buttons 15** to scroll through the choices, and then press the **▼ Button 14** so that the cursor is next to **BACK TO MASTER MENU** to continue the setup process.

The following few paragraphs detail the instructions for surround mode categories with several mode options or with other available settings.

On the **DOLBY SURROUND** menu (Fig. 5), choices include Dolby Digital, Dolby Pro Logic II (Movie, Music and Game), Dolby Pro Logic IIx (Movie, Music and Game), Dolby Pro Logic, Dolby 3 Stereo, Dolby Virtual Speaker Reference (2- or 3-speaker mode) and Dolby Virtual Speaker Wide (2-, 3-, 4- or 5-speaker mode). Availability of the Dolby 3 Stereo and the various Dolby Virtual Speaker modes may vary depending on the type of incoming audio signal. For a complete description of the different Dolby Surround modes, see pages 34–35.

The Dolby Digital EX and Dolby Pro Logic IIx modes are only available when the system is set for 6.1/7.1 operation by configuring the Surround Back speakers to **SMALL** or **LARGE**, as described on page 27 or using EzSet+. When a disc is playing with a Dolby Digital soundtrack that contains a special "flag" signal in the data stream, the Dolby Digital EX mode will be selected automatically. It may also be selected using this menu or through the front-panel or remote controls, as shown on page 33.

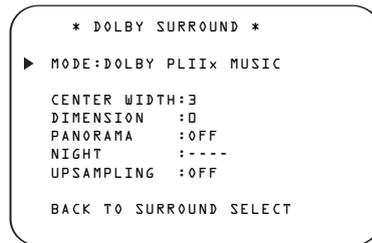


Figure 5

When the cursor is at the **MODE** line, press the **◀▶ Buttons 15** to select the desired Dolby Surround mode. If a Dolby Digital source is playing, the initial mode will automatically be selected, depending on the configuration of your system (e.g., 5.1 or 7.1) and the number of channels in the source being played. You may also select a combination mode that applies post-processing so that Dolby Pro Logic IIx may be used to create back surround channels from a 2.0 or 5.1 source. This will appear in the **MODE** line by showing both the Dolby Digital mode and the second mode, separated by a plus sign (e.g., **DOLBY D+DOLBY PRO LOGIC II MUSIC**). Keep in mind that the Dolby Digital EX and Dolby Pro Logic IIx modes are only available when the AVR is set for 6.1/7.1 operation.

When Dolby Pro Logic II Music or Dolby Pro Logic IIx Music is selected as the listening mode, three special settings are available to tailor the sound field to your listening environment and your individual taste and preferences. (When other Dolby Surround modes, such as Dolby Pro Logic II Movie, are selected, dashed lines will indicate that these settings are not active.)

- **Center Width:** This setting adjusts the balance of the vocal information in the front soundstage, between the center and front left/right speakers. The lower settings spread the center channel sound more broadly into the left and right channels. A higher number (up to "7") produces a tighter center channel presentation.
- **Dimension:** This setting alters the perceived depth of the surround field by creating a shallower presentation that appears to move sounds toward the front of the room, or a deeper presentation that appears to move the center of the sound field toward the back of the room. The setting of "0" is a neutral default, with the range of adjustment shown as "R-3" for a deeper, rear-oriented sound to "F-3" for a shallower, front-oriented sound.
- **Panorama:** Switch this setting on or off to add an enveloping wraparound presentation that increases the perception of sound along the sides of the room.

To change these parameters, press the **▼ Button 14** while the **DOLBY SURROUND** submenu is on the screen until the **▶** cursor is pointing to the

line on the menu with the parameter you wish to change. Then, press the **◀▶ Buttons 15** to alter the setting to your taste.

When a Dolby Digital source is playing and the **DOLBY DIGITAL** mode is selected, the Night mode settings may be available, if the program material is encoded for Night mode, as in Figure 6.

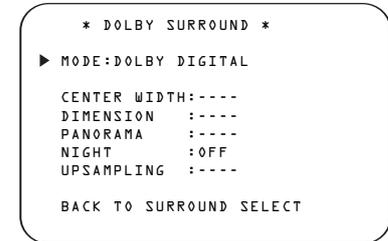


Figure 6

The Night mode is a feature of Dolby Digital that uses special processing to preserve the dynamic range and full intelligibility of a movie soundtrack while reducing the peak level. This prevents abruptly loud transitions from disturbing others, without reducing the sonic impact of a digital source. The Night mode is only available when specially encoded Dolby Digital signals are played.

To adjust the Night mode setting, make certain that the **▶** cursor is on the **NIGHT** line of the **DOLBY SURROUND** submenu. Next, press the **◀▶ Buttons 15** to choose between the following settings, as they appear in the on-screen display:

OFF: When **OFF** is highlighted, the Night mode will not function.

MID: When **MID** is highlighted, a mild compression will be applied.

MAX: When **MAX** is highlighted, a more severe compression algorithm will be applied.

We recommend that you select the **MID** setting as a starting point and change to the **MAX** setting later, if desired.

The Night mode may also be adjusted directly any time a compatible Dolby Digital source is playing by pressing the **Night Mode Button 12**. When the button is pressed, **D-RANGE OFF** will appear in the lower third of the video screen and in the **Lower Display Line 27**. Press the **▼ Button 14** within 3 seconds to select the desired setting.

The last option line in this menu is the setting to turn the unit's upsampling feature on or off. In normal use, this feature is turned off, which means that digital sources are processed at their native sample rate. For example, a 48kHz digital source will be processed at 48kHz. However, the AVR 240 allows you to upsample the incoming 48kHz signals to 96kHz for added resolution.

SYSTEM CONFIGURATION

To take advantage of this feature, press the **▼ Button 14** so that the **▶** cursor is next to the **UPSAMPLING** line and press the **◀▶ Buttons 15** until **ON** appears. Note that this feature is only available for the Dolby Pro Logic II-Music, Dolby Pro Logic II-Movie, Dolby Pro Logic and Dolby 3 Stereo modes.

When all settings for Dolby surround mode setup have been made, press the **▼ Button 14** so that the **▶** cursor is next to **BACK TO SURROUND SELECT**, and press the **Set Button 16** to return to the **SURROUND SELECT** submenu.

On the **DTS** menu, the choices made with the **◀▶ Buttons 15** on the remote are determined by a combination of the type of program material in use and whether the 5.1- or 6.1/7.1-channel configuration is in use.

When a DTS source is playing, the choice of modes for 7.1 systems will vary according to the type of program source (DTS Stereo, DTS 5.1, DTS 96/24, DTS-ES Matrix or DTS-ES Discrete). Press the **◀▶ Buttons 15** to scroll through the choices that are available for your system and the program in use.

With no source playing, or while an analog audio source is playing, you will only be able to view the DTS Neo:6 surround mode choices. These include DTS Neo:6 3-channel Cinema mode (recommended when front left, right and center speakers are present but no surround speakers are available), DTS Neo:6 5-channel Cinema mode (for movies or television), DTS Neo:6 5-channel Music mode (optimized for music-only materials), and DTS Neo:6 6-channel Cinema and Music modes (available when the Surround Back speaker channels are configured as either **LARGE** or **SMALL**; see page 27).

When the 5.1 configuration is in use, the AVR will automatically select the 5.1 version of DTS processing when a DTS data stream is selected.

When the 6.1/7.1 mode is selected, the DTS-ES Discrete mode will automatically be activated when a DTS source with the ES Discrete "flag" is in use. When a non-ES DTS disc is in use, you may select the DTS-ES Matrix mode through this menu to create a full eight-channel surround mode.

When a DTS 96/24 signal is detected, the AVR 240 defaults to the DTS surround mode, but reproduces the higher-resolution materials that are present due to the higher sampling rate automatically. See page 34 for a complete explanation of the DTS modes.

When the incoming bitstream is a DTS digital signal, the AVR 240's sophisticated microprocessor allows you to select a "combination" mode that applies post-processing so that Dolby Pro Logic IIx or DTS Neo:6

may be used to create back surround channels from a 2.0 or 5.1 source. This will appear in the **MODE** line by showing both the digital mode and the second mode, separated by a plus sign (e.g., **DTS+ DOLBY PRO LOGIC II MUSIC**).

On the **LOGIC 7** menu, the choices made with the **◀▶ Buttons 15** on the remote are determined by whether the 5.1- or 6.1/7.1-channel configuration is in use. In either case, the selection of a Logic 7 mode enables Harman Kardon's exclusive Logic 7 processing to create fully enveloping, multichannel surround sound from either two-channel Stereo or Matrix-encoded programming such as VHS cassettes, laser discs or television broadcasts produced with Dolby surround.

You may select from the Music, Cinema or Enhance modes. They work best with two-channel music recordings, surround-encoded programs or standard two-channel programming of any type, respectively. The Logic 7 modes are not available when either Dolby Digital or DTS digital soundtracks are in use. See page 34 for a complete explanation of the Logic 7 modes.

On the **DSP (SURR)** menu, the choices made with the **◀▶ Buttons 15** on the remote select from one of the DSP surround modes that are designed for use with two-channel stereo programs to create a variety of sound field presentations. The choices available are Hall 1, Hall 2 and Theater. The Hall and Theater modes are designed for multichannel installations, and are available in 5.1- or 6.1-channel versions. See pages 34–35 for a complete explanation of the DSP surround modes.

The **VMAx** menu offers virtual processing that delivers a full surround field when only the front left and right speakers are installed. The **NEAR** mode is recommended for situations where the speakers are less than five feet from the listening position. The **FAIR** mode is optimized for installations where the listening area is more than five feet from the speakers.

On the **STEREO** menu, the choices made with the **◀▶ Buttons 15** on the remote may either turn the surround processing off for a traditional two-channel stereo presentation, or select **5 STEREO** or **7 STEREO**, depending on whether a 5.1 or 6.1/7.1 configuration is in use. The latter modes feed a two-channel presentation to all speakers, regardless of the number of speakers in use. See page 35 for an explanation of the 5 Stereo and 7 Stereo modes.

NOTE ON ANALOG BYPASS MODE: If an analog audio source is selected and you have full-range front speakers, you may select an analog bypass two-channel mode in which the analog signal is routed directly

from the input to the volume control, without being digitized or processed. The analog bypass mode is selected as one of the surround modes.

First, make sure to remove the tone controls from the circuitry by pressing the **Tone Mode Button 5**. If the **TONE OUT** message appears in the **Lower Display Line 27**, then simply wait a few seconds for the message to disappear. Otherwise, press the **◀▶ Buttons 10 15** until **TONE OUT** does appear.

Then, press the **Stereo Mode Select Button 28** on the remote, or press the **Surround Mode Group Selector 7** on the front panel until the Stereo modes are selected. Scroll through the stereo modes by pressing either the **Stereo Mode Select Button 28** or the **Surround Mode Selector 8** until **SURROUND OFF** appears in the **Lower Display Line 27** and on screen. Depending on the direction of your scroll, the **DSP Surround Mode Indicator 28** may or may not be lit. Continue to scroll for the DSP indicator to appear or disappear.

When the **DSP Surround Mode Indicator 28** is lit, the input signal is being digitized and bass management settings will be applied. For example, if you have set the front speakers to **SMALL**, this setting will be selected. When the **DSP Surround Mode Indicator 28** is not lit, analog bypass mode is engaged. The AVR will automatically configure the front speakers as **LARGE**, overriding your manual configuration. See page 27 for more information on speaker setup.

After the selections are made on the Dolby, DTS, Logic 7, DSP (Surround), VMAx or Stereo menus, press the **▲/▼ Buttons 14** so that the cursor moves to the **BACK TO MASTER MENU** line and press the **Set Button 16**.

Automated Speaker Setup Using EzSet+

The AVR 240 is one of the first receivers in its class to offer automated speaker setup and system calibration. This process greatly simplifies the installation of your new receiver by using a series of test signals and the power of an advanced digital signal processing system to eliminate the need for manual adjustment of speaker "size", crossover, delay and output level settings. With EzSet+ your new receiver even alerts you to errors in speaker connections that prevent a speaker from functioning.

EzSet+ enables you 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+ to calibrate your system, but if desired you may also make any of the configuration settings manually, or trim the settings provided by EzSet+ by following the instructions on pages 26 through 31.

If you wish to configure your AVR manually, or if for some reason your EzSet+ microphone is unavailable, you may still do so by following the instructions on pages 26–31.

Step 1: EzSet+ 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+ 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+ microphone at the correct height. The microphone includes a threaded insert on the bottom for tripod mounting.

Step 3: Plug the EzSet+ microphone into the AVR 240'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 20 feet 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 EzSet+ menus by first pressing the **OSD Button 22** to bring the **MASTER MENU** to the screen. Next, press the **▲/▼ Buttons 14** to move the on-screen cursor to the **EzSet+** menu line. Press the **Set Button 16** to move to the next screen (Figure 7).

Step 5: The first screen of the EzSet+ 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 **YES** and press the **Set Button 16**. If you do not wish to continue with the EzSet+ process, press the **◀/▶ Buttons 15** so that the cursor points to **NO**, and then press the **Set Button 16** to return to the **MASTER MENU**. Note that if you attempt to move to the next menu without plugging in the microphone, a reminder message will flash at the bottom of the screen.

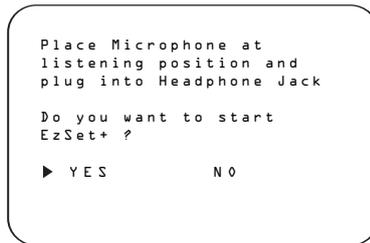


Figure 7

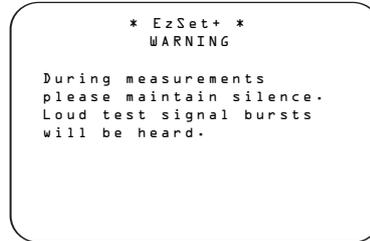


Figure 8

Step 6: After entering **YES** to start the EzSet+ system, you will next see a warning message (Figure 8), and the screen will then change to the main EzSet+ menu. The **WARNING** screen is a reminder that in order for the system to perform accurate measurements, it is important that the listening room be as quiet as possible. After 5 seconds, the screen will change again to display the main EzSet+ menu (Figure 9).

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+ process, or that you do not use EzSet+ and enter the configuration settings manually, as described on pages 26–31.

Step 7: While the main EzSet+ menu is visible, you may start and stop the calibration process, or monitor the progress of the measurements and view the results. When the screen first appears, you will see **MEASUREMENT : STOP** on the first line of the menu list. To start the EzSet+ test process, you must first tell the system how many speakers are in your system. To do that, choose one of these two options:

- If your system includes a full complement of seven main speakers (front left, center, front right, surround right, surround back right, surround back left, surround left) and a subwoofer, press the **◀/▶ Buttons 15** so that **7 . 1** appears to the right of **MEASUREMENT**, and then press the **Set Button 16** to start EzSet+.

- If your system includes a traditional surround speaker complement of five main speakers (front left, center, front right, surround right, surround left) and a subwoofer, press the **◀/▶ Buttons 15** so that **5 . 1** appears to the right of **MEASUREMENT**, and then press the **Set Button 16** to start EzSet+. To stop the calibration process at any time, press the **▲/▼ Buttons 14** to move the on-screen cursor to the **MEASUREMENT** line; press the **◀/▶ Buttons 15** so that **STOP** appears and then press the **Set Button 16**.

NOTE: Using EzSet+ is not recommended if your system consists of fewer than six speakers. For smaller systems, configure your receiver using the manual setup section on pages 26–31.

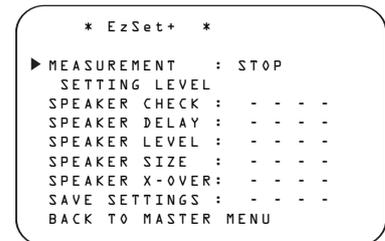


Figure 9

Step 8: Once EzSet+ has been started, you will hear test signals circulate among all of the speakers as the system sets the master volume level, checks for the presence of speakers, sets the distance measurement and calculates delay time settings, sets the output level for each speaker, 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. When the EzSet+ screen first appears, it contains a series of dashes, but as the test and measurement proceeds, you will see the following messages as the individual measurements are taken:

- **System Level:** A **SETTING VOLUME** message will appear to indicate that the system is setting the overall volume level to the proper level as a prelude to testing the individual channels. During this test, you will see this line of the menu screen change as the volume level is adjusted.
- **Speaker Check:** The system will circulate a test signal to determine which channels have a speaker connected. During this test, you will see the name of each channel position displayed while a signal is sent to that speaker.

NOTE: While this test detects whether a speaker is connected to a particular output, it cannot determine whether the speaker is in the correct position. (For example, it can tell whether a speaker is connected to the Surround Right output, but it cannot tell whether the speaker is on the right or left side of

SYSTEM CONFIGURATION

your listening room.) For that reason, we strongly recommend that you try to listen as the tone circulates, matching the name shown for each channel to the location of the speaker. If a tone is heard from a speaker position that does not match the on-screen message, stop EzSet+, exit the menus, turn your receiver off and check for proper speaker connections on the rear panel before resuming the setup. When this test is complete, **YES** will be shown to the right of **SPEAKER CHECK** on the menu screen.

- **Speaker Delay:** This test will circulate the tones again as the name of each channel is shown to measure the distance from the microphone to each speaker. The results of these tests will be used to set the delay time settings for each active speaker position. When this test is complete, a speaker-to-microphone (listening position) distance will be shown to the right of the **SPEAKER DELAY** line on the menu screen.

NOTE: A/V Sync Delay must be set manually (see page 30).

- **Speaker Level:** This test circulates a test signal and measures the output from each active speaker position. The results of the measurements are used to adjust the individual channel outputs as needed, so that they are identical. This is an essential element of ensuring that surround sound fields are properly reproduced. If desired, you may use the results of the automated testing as a baseline and then make manual adjustments to trim the output levels to your personal taste, following the instructions shown on page 30 or 40. When this test is complete, an output level adjustment number will be shown to the right of the **SPEAKER LEVEL** line on the menu screen.

- **Speaker Size:** The measurements and calculations for this test take place at the same time as the test signals are circulated to calculate the output levels; they are used to determine whether the speakers in your system are "large" or "small" for the purposes of bass management. (If desired, you may use the results of the automated testing as a baseline and then make manual adjustments to the speaker size settings independently for each source, following the instructions shown on page 27.) When this test is complete, an output level adjustment number will be shown to the right of the **SPEAKER SIZE** line on the menu screen.

- **Speaker Crossover:** The measurements and calculations for this test take place at the same time as the test signal is circulated to calculate the levels, and they are used to determine the crossover setting for each speaker in your system to create a seamless transition between the frequencies sent to your main speakers and subwoofer (if available). If

desired, you may use the results of the automated testing as a baseline and then make manual adjustments to the crossover settings, following the instructions shown on page 28. When this test is complete, a crossover frequency will be shown to the right of the **SPEAKER X-OVER** line on the menu screen.

Step 9: When all measurements are successfully completed, the test signals will stop and a **TEST DONE – UNPLUG MIC** message will appear in the second line. The cursor will pause at **SAVE SETTINGS**, allowing you the option of selecting **YES** or **NO**. 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. To enter the settings to the receiver's memory and return to the Master Menu, make sure that **YES** appears at the **SAVE SETTINGS** line, press the **▲/▼ Buttons 14** so that the on-screen cursor is pointing to **RETURN TO MASTER MENU** and press the **Set Button 16**.

NOTE: If you wish to check the test results before exiting the EzSet+ menu, press the **▲/▼ Buttons 14** so that the on-screen cursor is at the second line of the menu listings, and then press the **◀▶ Buttons 15** to scroll through the list of speaker positions. The data on each line will also be entered into the listings on the individual **SPEAKER SETUP**, **DELAY ADJUST** and **CHANNEL ADJUST** menus once you exit EzSet+.

Step 10: If the measurements are not successful due to a missing or malfunctioning speaker, an **ERROR** message and menu will appear (Figure 10). The EzSet+ system is programmed to look for speaker pairs at the front left/front right, surround left/surround right and surround back left/surround back right positions. If the tests to any of those three channel pairs indicates that one, but not *both* of the speakers in the pair is present, the menu will show **NONE** next to the speaker position where the tests did not report back that a speaker is present. Should this message appear, make note of the suspect speaker location, exit all menus and turn the receiver off. Check all speaker wire connections and then rerun EzSet+.



Figure 10

When you have successfully completed the EzSet+ 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 32 to learn how to operate the AVR 240, although we recommend that you first record your system's settings using the worksheet on page 62 in case the settings need to be reentered due to a power loss or for some other reason. For those situations where you may wish to make a change to the settings entered by EzSet+, follow the instructions on the following pages.

Manual Setup

Harman Kardon recommends that you use the EzSet+ procedure described on pages 24–26 to configure your receiver for operation. However, you may manually configure your AVR if you have fewer than six speakers in your system, if you have run EzSet+ but wish to make adjustments, if your EzSet+ microphone is not available, or if you simply prefer to make your adjustments manually. In addition, the A/V Sync Delay setting must be performed manually (see Delay Settings section, page 30).

To begin manual setup using the full-OSD menu system, press the **OSD Button 22** so that the **MASTER MENU** appears on screen. Press the **▲/▼ Buttons 14** until the **▶** cursor points to the **MANUAL SETUP** line, and press the **Set Button 16**. The **MANUAL SETUP** menu (Figure 11) will appear.

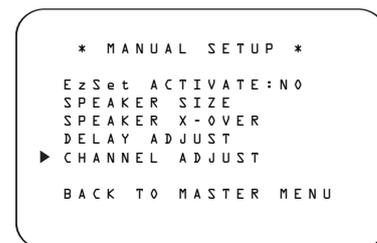


Figure 11

The first line of the **MANUAL SETUP** menu indicates whether EzSet+ has been run and its settings saved. If this line indicates **YES**, then you will be able to see the settings determined by EzSet+ as you view the **SPEAKER SIZE**, **SPEAKER X-OVER**, **DELAY ADJUST** and **CHANNEL ADJUST** submenus. If you wish to reset the speaker size, crossover, output level and delay settings to their factory defaults, use the **▲/▼ Buttons 14** to move the **▶** cursor to point to this line, and then use the **◀▶ Buttons 15** to change this setting to **NO**. You may change this setting back to **YES** to reactivate the EzSet+ settings.

NOTE: If you have forgotten to unplug the EzSet+ microphone, you will be unable to access the **SPEAKER SIZE**, **SPEAKER X-OVER** and **DELAY ADJUST** menus.

Adjust the submenus in the **MANUAL SETUP** submenu in order, as some settings require that previous settings be established first.

Speaker Size

This menu tells the AVR 240 which type of speakers are in use. This is important as it adjusts the settings that decide whether your system will use the "5-channel" or "6-channel/7-channel" modes, as well as determining which speakers receive low-frequency (bass) information.

If you have already completed an automated setup using EzSet+ the settings calculated during that procedure will already appear. No further adjustment is required unless you wish to change a specific item to reflect your personal taste or a nonstandard system configuration.

You will first need to access the **SPEAKER SIZE** submenu. With the **MANUAL SETUP** submenu on screen, the **▶** cursor should be pointing to the first line, **SPEAKER SIZE**. If it is not, use the **▼** Button **14** until it is, then press the **Set** Button **16**. The **SPEAKER SIZE** submenu will appear (see Figure 12).



Figure 12

For each of these settings, use the **LARGE** setting if the speakers for a particular position are traditional full-range loudspeakers. Use the **SMALL** setting for smaller, frequency-limited satellite speakers that do not reproduce sounds below 200Hz. Note that when "small" speakers are used, a subwoofer is required to reproduce low-frequency sounds. Remember that the "large" and "small" descriptions do not refer to the actual physical size of the speakers, but to their ability to reproduce low-frequency sounds. If you are in doubt as to which category describes your speakers, consult the specifications in the speakers' owner's manual, or ask your dealer.

Begin the speaker setup process by making certain that the cursor is pointing toward the **LEFT/RIGHT** line, which sets the configuration for the front left and right speakers. If you wish to make a change to the

front speakers' configuration, press the **◀▶** Buttons **15** so that either **LARGE** or **SMALL** appears, matching the appropriate description from the definitions shown above.

When **SMALL** is selected, low-frequency sounds will be sent only to the subwoofer output. If you choose this option and there is no subwoofer connected, you will not hear any low-frequency sounds from the front channels.

When **LARGE** is selected, a full-range output will be sent to the front left and front right outputs. Depending on the choice made in the **SUBWOOFER** line in this menu, bass information may also be directed to the front left/right speakers, a subwoofer or both.

NOTE ON ANALOG BYPASS MODE: If an analog audio source is selected and you have full-range front speakers, you may select an analog bypass two-channel mode in which the analog signal is routed directly from the input to the volume control, without being digitized or processed. The analog bypass mode is selected as one of the surround modes. See the note on page 24 for detailed instructions.

When the DSP **Surround Mode Indicator 23** is lit in **SURROUND OFF** mode, the input signal is being digitized and bass management settings will be applied. For example, if you have set the front speakers to **SMALL**, this setting will be selected. When the DSP **Surround Mode Indicator 23** is not lit, analog bypass mode is engaged. The AVR will automatically configure the front speakers as **LARGE**, overriding your manual configuration.

When you have completed your selection for the front channel, press the **▼** Button **14** on the remote to move the cursor to **CENTER**.

Press the **◀▶** Buttons **15** on the remote to select the option that best describes your system, based on the speaker definitions shown below.

When **SMALL** is selected, low-frequency center channel sounds will be sent only to the subwoofer output. If you choose this option and there is no subwoofer connected, you will not hear low-frequency sounds from the center channel.

When **LARGE** is selected, a full-range output will be sent to the center speaker output, and NO center channel signal will be sent to the subwoofer output.

NOTE: If you choose Logic 7 as the surround mode the "large" option will not be available for the center speaker. This is due to the requirements of Logic 7 processing, and does not indicate a problem with your receiver.

When **NONE** is selected, no signals will be sent to the center channel output. The receiver will operate in a "phantom" center channel mode and center channel information will be sent to the left and right front channel outputs. When only front left and right speakers are used, with no center or surround speakers, VMAx and Dolby Virtual Speaker are good alternative modes.

When you have completed your selection for the center channel, press the **▼** Button **14** on the remote to move the cursor to **SURROUND**.

Press the **◀▶** Buttons **15** on the remote to select the option that best describes the side surround speakers in your system based on the speaker definitions shown on this page.

When **SMALL** is selected, low-frequency surround channel sounds will be sent to the subwoofer output only. If you choose this option and there is no subwoofer connected, you will not hear any low-frequency sounds from the surround channel.

When **LARGE** is selected, a full-range output will be sent to the surround channel outputs, and NO surround channel signals will be sent to the subwoofer output.

When **NONE** is selected, surround sound information will be split between the front left and front right outputs. For optimal performance when no surround speakers are in use, the Dolby 3 Stereo or Dolby Virtual Speaker mode should be used.

When you have completed your selections for the main surround channels, press the **▼** Button **14** on the remote to move the cursor to **SURR BACK**. This line serves two functions: It not only configures the setting for the surround back channels when they are present; it also tells the AVR 240's processing system to configure the unit for either 5.1 or 6.1/7.1 operation.

The surround back speakers need only be configured to be active once, and the AVR 240 will set them as active for all surround modes and sources. If you wish to set them as inactive for some sources, you may scroll down to the **BASS MGR** line of the **SPEAKER SIZE** menu and press the **◀▶** Buttons **15** so that **INDEPENDENT** appears. See below for more information on the Global/Independent setting for the bass manager.

Press the **◀▶** Buttons **15** to select the option that best describes the speaker in use at the back surround position based on the definitions shown below:

When **NONE** is selected, the system will adjust so that only 5.1-channel surround processing/decoding modes are available.

SYSTEM CONFIGURATION

When **SMALL** is selected, the system will adjust so that the full complement of 6.1/7.1 surround processing/decoding modes are available, and low-frequency information below the crossover point will be sent to the subwoofer output. If you choose this option and there is no subwoofer connected, you will not hear any low-frequency sounds from the surround back channel.

When **LARGE** is selected, the system will adjust so that the full complement of 6.1/7.1 surround processing/decoding modes are available, and a full-range signal will be sent to the surround back channels, with no low-frequency information sent to the subwoofer output.

NOTE: Although Harman Kardon strongly recommends using two surround back speakers, we recognize that some users may have only a single surround back speaker. It is possible to set up a 6.1-channel system by following this procedure:

Set the surround back speakers to **NONE** in the **SPEAKER SIZE** menu. Then run the EzSet+ procedure for a 5.1-channel system.

Now you may connect the single speaker to the **LEFT Surround Back Speaker Output 10**. Use the **SPEAKER SIZE** menu to configure the left surround back channel. The output levels, delay settings and crossover settings will all have to be set manually for the surround back speaker.

If you choose to operate the receiver in only a 6.1-channel configuration, keep in mind that if a 7.1-channel surround mode, such as Dolby Pro Logic IIx or Logic 7/7.1, is selected, then certain back surround information will be lost. Therefore, this workaround is recommended only as a last resort where it is not possible to connect separate left and right surround back loudspeakers.

When you have completed your selection for the back surround channels, press the **▼ Button 14** on the remote to move the cursor to **SUBWOOFER**.

Press the **◀▶ Buttons 15** on the remote to select the option that best describes your system.

The choices available for the subwoofer position will depend on the settings for the other speakers, particularly the front left/right positions.

If the front left/right speakers are set to **SMALL**, the subwoofer will automatically be set to **SUB**, which is the "on" position.

If the front left/right speakers are set to **LARGE**, three options are available:

- If no subwoofer is connected to the AVR 240, press the **◀▶ Buttons 15** on the remote so that **NONE** appears in the on-screen menu.

When this option is selected, all bass information will be routed to the front left/right "main" speakers.

- If a subwoofer is connected and you wish to have the front left/right "main" speakers reproduce bass frequencies at all times, and have the subwoofer operate only when the AVR 240 is being used with a digital source that contains a dedicated Low-Frequency Effects, or LFE, soundtrack, press the **◀▶ Buttons 15** on the remote so that **LFE** appears in the on-screen menu.
- If a subwoofer is connected and you wish to use it for bass reproduction in conjunction with the main front left/right speakers, regardless of the type of program source or Surround mode, press the **◀▶ Buttons 15** on the remote so that **SUB LFE+L/R** appears in the on-screen menu. When this option is selected, a full-range signal will be sent to the front left/right "main" speakers, and the subwoofer will receive the bass frequencies under frequency selected, as described below, as well as the LFE information.

When all size settings have been made (or in those cases where none are needed), press the **▼ Button 14** so that the cursor is next to the **BASS MGR** line to make the final setting on this menu.

This setting allows you to use the same speaker size configuration for all inputs, or to have different settings for each input. In most cases, the factory default setting of **GLOBAL** will be appropriate, as most listeners do not need to have individualized settings. However, some listeners, particularly those with full-range front speakers that are used for both movies and music, may prefer that different bass management be used when listening to music through a CD player as opposed to a movie from a DVD player, VCR or cable/satellite set-top. Also, you may wish to activate or deactivate certain speakers for some sources. For example, when listening to CDs, you may wish to have only the front left and right speakers active, or for watching TV, you may wish to deactivate the surround back speakers in favor of a 5.1-channel configuration.

If you wish to customize the speaker settings for each input, make certain that the **▶** cursor is on the **BASS MGR** line, and press the **◀▶ Buttons 15** so that **INDEPENDENT** appears. When this setting is entered by exiting the menu, you may need to go back to the **INPUT** menu to select another input, and then return to this menu page again to change the settings for that input. Repeat the procedure for any input where you wish to have a different set of speaker configurations.

NOTE: When the **INDEPENDENT** setting is activated, you may assign different speaker size settings to each input to accommodate different bass

management settings that match your preferences with the type of program material normally used with a particular source (for example, when movies are played from DVD and music from a CD player). However, the actual speaker crossover settings are set only once and do not change with the input selection. The reason is that, while bass management preferences may vary, the actual speakers remain the same, regardless of the bass management and redirection settings.

Speaker Crossover Settings

When all initial speaker "size" settings have been made, you now have the option to take advantage of the AVR 240's Quadruple Crossover system, which allows individual crossover settings to be made for each speaker grouping. In systems where full-range or tower speakers are used for the front soundstage or where different brands or models are in use at the various speaker positions, this feature allows you to customize the bass management and redirection circuits with a precision not previously possible.

If you have already completed an automated setup using EzSet+ the settings calculated during that procedure will already appear. No further adjustment is required unless you wish to change a specific item to reflect your personal taste or a nonstandard system configuration.

The low-frequency crossover setting is determined by the design of your speakers. Depending on the design and driver complement of your speakers, it is usually the lowest possible frequency the speaker is capable of reproducing. Before making any changes to the settings for the crossover point, we suggest that you find the lowest frequency for the speakers in each of the three groupings, front left/right, center and surrounds, by looking at the specifications page of each speaker's owner's manual, or by contacting your dealer or the manufacturer's Customer Service department or Web site. You will need this figure to accurately configure the next group of settings.

The factory default setting for all speaker positions is 100Hz. If that setting is acceptable for all channels, then no adjustments are needed and you may skip this section. However, if you wish to change one of the settings, proceed to the **SPEAKER X-OVER** submenu by pressing the **▼ Button 14** until the **▶** cursor is pointing to the **BACK TO MANUAL SETUP** line of the **SPEAKER SIZE** submenu, and then pressing the **Set Button 16** so that the **MANUAL SETUP** submenu appears. Then press the **▼ Button 14** until the **▶** cursor is pointing to the **SPEAKER X-OVER** line. Press the **Set Button 16**, and the **SPEAKER X-OVER** submenu will appear (see Figure 13).



Figure 13

To change the setting for any of the four speaker groups, press the **▲/▼ Buttons 14** until the cursor is next to the line where you wish to make a change, and then press the **◀▶ Buttons 15** until the desired setting appears. The available choices that determine at which point low-frequency information will be sent to the subwoofer, rather than to the main speaker channel, are 40Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz and 200Hz. Pick the choice that is identical to the information for the speakers, or if an exact match is not possible, pick the closest choice that is ABOVE the speaker's low-frequency limit or crossover point to avoid the creation of a low-frequency "hole" where your system will have no bass information.

NOTE: In cases where **LARGE** is selected as the front channel speaker option and **LFE+L/R** is selected as the subwoofer option, the front channel sound information below the setting shown will be sent to BOTH the front channel speakers and the subwoofer.

The crossover settings for the Left/Right, Center, Surround and Surround Back speakers are used to determine where bass information is sent when it is derived from the main channels of a source.

The setting for the menu line shown as **LFE** is used to impose a low-pass filter point for the information in the low-frequency effects (LFE) channel that is a part of Dolby Digital- and DTS-encoded source material.

While the LFE channel, which is the ".1" you see in surround sound designations, is restricted to low frequency sounds, some mixes may include information that is higher in frequency than your subwoofer is capable of reproducing. To prevent unwanted sounds from being sent to subwoofers that cannot handle them and which do not have a built-in low-pass filter, the **LFE** option line enables you to select a setting for the low-pass filter that is part of the subwoofer feed from the LFE channel. The settings available are the same as those tied to any one of the four available speaker positions on this submenu. We recommend that you use the frequency that is just slightly higher than the upper capability limit of your subwoofer, as shown in the sub's owner's manual.

When the cursor is on the **LFE** line, press the **◀▶ Buttons 15** to choose the appropriate setting.

When all speaker selections have been made, press the **▼ Button 14** and then the **Set Button 16** to return to the **MANUAL SETUP** submenu.

Delay Settings

Due to the different distances between the listening position for the front channel speakers and the surround speakers, the amount of time it takes for sound to reach your ears from the front versus surround speakers differs. You may compensate for this difference through the use of the delay settings to adjust the timing for the speaker placement and acoustic conditions in your listening room or home theater.

In addition to adjusting the delay time for each individual speaker position, the AVR 240 allows you to adjust the delay for the combined output of all speakers as a group. This feature is called **AV Sync Delay**; it allows you to compensate for delays to the video image that may be caused by the processing in products such as digital video displays, video scalars, digital cable or satellite systems, or personal video recorders. With proper adjustment of the setting for **AV Sync Delay**, you can eliminate the loss of lip sync that may be caused by digital video applications.

Although EzSet+ calculates the delay settings for the individual speaker positions with very accurate results, the setting for **AV Sync Delay** may only be done manually, since it requires that you observe the program material on your video display while adjusting the delay, if any, required for the specific source. Thus, even though you may have used EzSet+ for other delay settings, the **AV Sync Delay** should still be configured as outlined below.

If you have already calibrated your system using EzSet+, the delay settings shown will reflect the results of the measurements made by EzSet+. No further changes are needed unless you wish to change an item to reflect your personal preferences. To change the settings, follow the instructions below to enter the distance between the speaker's location and your main listening position. The measurements need not be accurate to the inch, as the system is designed to accommodate typical listening rather than a specific "sweet spot" position.

Due to the differences in the way each surround mode operates, the delay settings must be established individually for each surround mode. Once the delay settings are configured for the version of the surround mode with the most channels, they need not be entered again for a version of that mode with fewer channels. For example, once the delay settings are established for Dolby Pro Logic IIx – Movie, they will

be carried over to Dolby Pro Logic II – Movie mode. However, you will need to enter the delay settings separately for each variant mode (e.g., Dolby Pro Logic IIx – Music, Dolby Pro Logic IIx – Game, Dolby Pro Logic, Dolby 3 Stereo and Dolby Digital EX).

Delay times are adjustable for all surround modes. Although all channels will appear on screen with the default or previously entered distances, the menu system will only allow you to adjust the settings for those channels which are actually used by the current surround mode. For example, when you are listening to music CDs using the CD input in DSP Surround Off mode, you may adjust the delay settings for the front left, front right and subwoofer channels only. The cursor will simply skip the other channels as you navigate through the menu. Therefore, the first time you adjust the delay settings, it is recommended that you select a 5.1-, 6.1- or 7.1-channel surround mode, depending on the number of speakers in your system. For the purposes of setting the delay distances, the Logic 7 modes allow access to the settings for all channels without requiring that you play a source.

To set the delay time for a specific input, the **DELAY ADJUST** submenu (Figure 14) should be visible on your on-screen display. If it is not, press the **OSD Button 22** to bring up the **MASTER MENU**, and press the **▼ Button 14** until the on-screen **▶** cursor is pointing at the **MANUAL SETUP** line. Press the **Set Button 16** to enter the **MANUAL SETUP** submenu, and then scroll down using the **▼ Button 14** until the **▶** cursor is pointing to the **DELAY ADJUST** line. Press the **Set Button 16** again, and the **DELAY ADJUST** submenu will appear (see Figure 14).

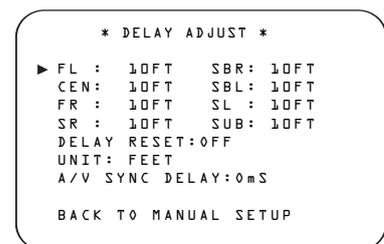


Figure 14

Once the **DELAY ADJUST** menu is on your screen, note that the default setting to enter the distances from the speakers to the listening position is in feet. If your measurements are in feet, proceed to the next step; if your measurements are made in meters, press the **▼ Button 14** until the on-screen **▶** cursor is at the **UNIT** line on the menu. Then, press the **◀▶ Buttons 15** so that **METER** is highlighted. When the change in measurement units is made, press the **▲/▼ Buttons 14** to return the **▶** cursor to the **FL** position.

SYSTEM CONFIGURATION

With the on-screen ► cursor pointing to **FL**, press the ◀/▶ Buttons 15 until the distance from the front left speaker to the preferred listening position is entered. Next, press the ▼ Button 14 to move the cursor to the **CENTER** line and use the ◀/▶ Buttons 15 again to enter the distance from the center speaker to the listening position. Continue in this fashion to enter the distance from the listening position to each of the front right (**FR**), surround right (**SR**), surround back right (**SBR**), surround back left (**SBL**), surround left (**SL**) and subwoofer (**SUB**) speakers. Remember that the **SBL** and **SBR** adjustments will only be needed when you have surround back speakers installed.

If you wish to reset the delay settings to their factory defaults at any time, use the ▲/▼ Buttons 14 so that the cursor is pointing to **DELAY RESET** and then press the ◀/▶ Buttons 15 so that **OFF** appears. The factory settings shown in Figure 14 will then be restored.

AV Sync Delay

If you have a digital video source or a digital video display that causes lack of lip sync you may use the AV Sync adjust feature to delay the audio signal as it is sent to all channels (as opposed to the individual settings) so that the picture and sound are brought back together. We recommend that this adjustment be made using the direct access controls on the remote, as shown below. That enables you to see the image while making the adjustment; however, you may also adjust it here using the menu system.

To adjust the AV Sync delay, press the ▲/▼ Buttons 14 so that the ► cursor is pointing to the **A/V SYNC DELAY** line on the menu and then press the ◀/▶ Buttons 15 to delay the sound sufficiently so that it matches the on-screen video.

Since the AV Sync Delay setting is best made while viewing the video program that is out of sync with its audio track, we strongly recommend that method rather than using the menu system. To do that, first press the **Delay Button 35** on the remote. The AV Sync Delay setting appears first, and it may be adjusted by pressing the **Set Button 16** within five seconds of when the **A/V SYNC DELAY** message appears in the on-screen display and the **Lower Display Line 27**. Then, press the ◀/▶ Buttons 15 to enter the desired delay setting that brings the video and sound back in sync. Press the **Set Button 16** again to enter the setting.

NOTE: The AV Sync delay setting is unique to each video input source, so you may enter a different setting to compensate for the differences between any product attached to the DVD or Video 1, 2, 3 or 4 inputs.

When the speaker-to-listening-position distance has been entered for all active speaker positions, press the ▲/▼ Buttons 14 until the on-screen cursor is next to **BACK TO MANUAL SETUP** and press the **Set Button 16**.

The delay settings may be changed at any time directly from the remote control by pressing the **Delay Button 35**. **A/V SYNC DELAY** will appear in the **Lower Display Line 27**, but you may press the ▲/▼ Buttons 14 to select any of the speaker groups.

Output Level Adjustment

Output level adjustment is a key part of the configuration of any surround sound product. It is particularly important for a digital receiver such as the AVR 240, as correct outputs ensure that you hear soundtracks with the proper directionality and intensity.

IMPORTANT NOTES:

- Listeners are often confused about the operation of the surround channels. While some assume that sound should always be coming from each speaker, most of the time there will be little or no sound in the surround channels. This is because they are only used when a movie director or sound mixer specifically places sound there to create ambience or a special effect, or to continue action from the front of the room to the rear. Once the output levels are properly set, it is normal for surround speakers to operate only occasionally. Artificially increasing the volume to the rear speakers may destroy the illusion of an enveloping sound field that duplicates the way you hear sound in a movie theater or concert hall.

- If you have elected to use your AVR 240 in a 6.1-channel configuration, you will not be able to use the EzSet+ procedure unless you follow these instructions. First, do not connect the surround back speaker, and run EzSet+ using a 5.1-channel configuration. Then connect your single surround back speaker to the **LEFT Surround Back Speaker Output 10**. Now follow the instructions in this section to manually set the correct speaker size, delay and output level for the surround back speaker. Remember that the test tone will circulate to all seven channels; you simply won't hear any sound when it reaches the right surround back channel. Harman Kardon strongly recommends that you upgrade your speaker system to a 7.1-channel package as soon as you can to achieve the best possible reproduction of all surround programs.

If you have already completed an automated setup using EzSet+ the settings calculated during that procedure will already appear. No further adjustment is required unless you wish to change a specific item to

reflect your personal taste or a nonstandard system configuration.

Before beginning the output level adjustment process, make certain that all speaker connections have been properly made. The system volume should be set to the level that you will use during a typical listening session.

Using the Full-OSD System

Follow these steps while seated in the listening position that will be used most often:

1. Adjust the volume so that it is at **-1.5dB**, as shown in the on-screen display or **Lower Display Line 27**.
2. If you have not run EzSet+, make certain that all speaker positions have been properly configured for their **LARGE** or **SMALL** settings (as outlined above).
3. Output level adjustment is most easily done through the **CHANNEL ADJUST** submenu (Figure 15). If you are already at the **MASTER MENU**, press the ▼ Button 14 until the on-screen ► cursor is next to the **MANUAL SETUP** line. Press the **Set Button 16** to enter the **MANUAL SETUP** submenu, and then scroll down using the ▼ Button 14 until the ► cursor is pointing to the **CHANNEL ADJUST** line. Press the **Set Button 16** again, and the **CHANNEL ADJUST** submenu will appear (see Figure 15).

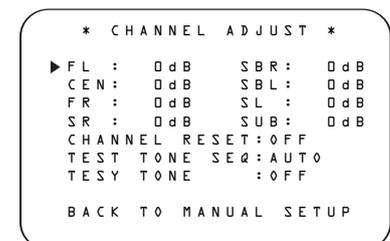


Figure 15

When the **CHANNEL ADJUST** submenu first appears, the test tone is off. If desired, you may immediately use the ▼ Button 14 to select any channel for adjustment using an external source, such as a test disc, from which to judge the output levels. After the ► cursor is pointing to the channel to be adjusted, press the ◀/▶ Buttons 15 to raise or lower the output level. However, before proceeding with any manual adjustment we recommend that you first use the AVR's internal test tone generator and automatic sequencer to send a tone to each channel so that you may verify that all speaker connections have been properly made.

4. To turn the test tone on and have it automatically circulate among the channels where a speaker has been configured (see page 27), press the **▼ Button 14** until the **▶** cursor is pointing to the **TEST TONE SEQ** line on the menu. Next, press the **◀▶ Buttons 15** until **AUTO** is shown. At this time the test tone will immediately begin to circulate clockwise around the room, playing for two seconds in each speaker before switching to the next speaker position. The **▶** cursor will blink next to the active speaker to indicate which speaker the sound should be coming from.

As the test noise circulates, listen to make certain that the sound comes from the speaker position shown in the **Lower Display Line 27**, next to the **▶** cursor in the on-screen display, and by the flashing indication in the **Speaker/Channel Input Indicators 25**. If the sound from a speaker location does NOT match the position indicated in the display, turn the AVR 240 off using the **Main Power Switch 1** and check the speaker wiring or connections to external power amplifiers to make certain that each speaker is connected to the correct output terminal.

5. After checking for speaker placement, let the test noise circulate again, and listen to see which channels sound louder than the others. Using the front left speaker as a reference, press the **◀▶ Buttons 15** on the remote to bring all speakers to the same volume level. When one of the **◀▶ Buttons 15** is pushed, the test noise circulation will pause on the channel being adjusted to give you time to make the adjustment. When you release the button, the circulation will resume after five seconds.
6. Continue to adjust the individual channels until the volume level sounds the same from each speaker. Adjustments should be made only with the **◀▶ Buttons 15** on the remote, NOT the main volume controls. If you are using a sound-pressure level (SPL) meter for precise level adjustment, set the volume so that the meter reads 75dB on the C-Weighting, Slow scale.

You may also make these same adjustments with complete manual control over the channel being adjusted by pressing the **▼ Button 14** until the **▶** cursor is pointing to the **TEST TONE SEQ** line on the menu and then using the **◀▶ Buttons 15** to select **MANUAL**. In the **MANUAL** mode, the test tone will also start immediately, but the tone will only be moved to another channel by pressing the **▼ Button 14**. When the manual sequencing mode is active, the tone is turned off by pressing the **▼ Button 14** until the **▶** cursor is pointing to the **TEST TONE** line and the **◀▶ Buttons 15** is then pressed to select **OFF**.

If you find that the output levels are either uncomfortably low or high, you may repeat the procedure. Return to Step 2 and adjust the master volume either slightly higher or lower to accommodate your particular room layout and your tastes. You may repeat this procedure as many times as necessary to achieve a desired result. In order to prevent possible damage to your hearing or your equipment, we emphasize that you should avoid setting the master volume above 0dB.

When all channels have an equal volume level, the adjustment is complete. Use the **▲/▼ Buttons 14** to move the **▶** cursor next to the **TEST TONE** line, and press the **◀▶ Buttons 15** until the word **OFF** appears to stop the test tone.

Note that any time a given surround mode is selected, even for a different source input, these output level settings will be used. However, the output levels must be set independently for each surround mode, including variations such as Dolby Pro Logic II-Music versus Dolby Pro Logic II-Movie. Although this may seem to be tedious, it is necessary in order to optimize the AVR's performance when differing methods are employed to steer the audio materials to the various channels. However, the AVR will carry over the settings for one mode to the same mode in a different channel configuration, such as Dolby Pro Logic II-Movie and Dolby Pro Logic II-Music. If you wish, as a shortcut to get started quickly, you may set the levels for Dolby Pro Logic II-Movie and copy down those settings, re-entering them for each of the Dolby modes and entering the settings only for those speakers which are available for each mode. Later, it is recommended that you adjust the output levels while listening to various sources, as opposed to the test tone. See page 40 for more information on trimming the output levels to external source material.

To exit this menu, press the **▲/▼ Buttons 14** until the on-screen **▶** cursor is next to the **BACK TO MASTER MENU** line, and then press the **Set Button 16** to return to the **MASTER MENU**.

NOTE: The subwoofer level is not adjustable when the normal test tone is in use. The subwoofer output level may be adjusted when the channel levels are being trimmed to an external program source rather than the test tone, as shown on page 40.

Using the Semi-OSD System

The output levels may also be adjusted at any time using the remote control and semi-OSD system. To adjust the output levels in this fashion, press the **Test Button 9**. As soon as the button is pressed, the test tone will begin to circulate as indicated earlier. The correct channel from which the test noise should be heard will be shown in the lower third of the video screen and in the **Lower Display Line 27**. While the test noise is circulating, the proper channel posi-

tion will also be indicated in the **Speaker/Channel Input Indicators 25** by a blinking letter within the correct channel.

To adjust the output level, press the **▲/▼ Buttons 14** until the desired level is shown in the display or on screen. Once the buttons are released, the test noise will begin to circulate again in five seconds.

When all channels have the same output level, press the **Test Button 9** again to complete the process.

If you find that the output levels are either uncomfortably low or high, you may repeat the procedure, but first adjust the master volume either slightly higher or lower (but not higher than 0dB) to compensate. Do not adjust the volume during the procedure, as that will cause the output levels to be higher or lower for only some channels, resulting in uneven balance.

NOTE: Output level adjustment is not available for the VMAx or Surround Off modes.

Additional Input Adjustments

After one input has been adjusted for Surround mode, digital input (if any) and speaker type, go back to the **INPUT SETUP** line on the **MASTER MENU** (Figure 1) and enter the settings for each input to be use. In most cases, only the digital input and surround mode will be different from one input to the next, while the speaker type, crossover frequency, Night mode and output level settings will usually be the same and will automatically be carried over when the previously configured surround modes are selected. However, you will need to reenter the delay and output level settings for each surround mode.

When all settings and adjustments have been made, press the **OSD Button 22** to return to normal operation of the AVR.

Once the settings outlined on the previous pages have been made, the AVR 240 is ready for operation. While there are some additional settings to be made, these are best done after you have had an opportunity to listen to a variety of sources and different kinds of program material. These advanced settings are described on pages 42–43 of this manual. In addition, any of the settings made in the initial configuration of the unit may be changed at any time. As you add new or different sources or speakers, or if you wish to change a setting to better reflect your listening taste, simply follow the instructions for changing the settings for that parameter as shown in this section.

At this time, we recommend that you enter your system's settings into the worksheet provided on page 62 so that you may easily reenter the data in the event of a power loss or for some other reason.

Having completed the setup and configuration process for your AVR 240, you are about to experience the finest in music and home theater listening. Enjoy!

OPERATION

Basic Operation

Once you have completed the initial setup and configuration of the AVR 240, it is simple to operate and enjoy. The following instructions will help you maximize the enjoyment of your new receiver:

Turning the AVR 240 On or Off

- When using the AVR 240 for the first time, you must first press the **Main Power Switch 1** on the front panel to turn the unit on. This places the unit in a Standby mode, as indicated by the amber color of the **Power Indicator 2**. Once the unit is in Standby, you may begin a listening session by pressing the **Standby/On Switch 3** on the front panel, or the **Power On Button 4** or **AVR Selector 6** on the remote. The **Power Indicator 2** will turn blue. 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 the Standby mode by pressing any of the **Input Selector Buttons 5 7 40 41** on the remote or the **Input Source Selector Button 16** on the front panel.

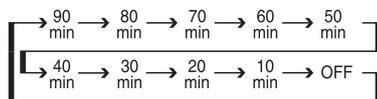
Whenever the AVR is turned on, you will see all of the front-panel indicators light up for a few seconds. This is normal, and it is part of the unit's power-on self-test procedure.

NOTE: After pressing one of the **Input Selector Buttons 5 7 40 41** to turn the unit on, press the **AVR Selector 6** to set the remote control to the AVR 240 functions.

To turn the unit off at the end of a listening session, simply press the **Standby/On Switch 3** on the front panel or the **Power Off Button 1** on the remote. Power will be shut off to any equipment plugged into the rear-panel **Switched AC Accessory Outlet 14** and the **Power Indicator 2** 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 2**.

- To program the AVR 240 for automatic turn-off, press the **Sleep Button 10** on the remote. Each press of the button will decrease the time before shutdown in the following sequence:



The sleep time will be displayed in the **Lower Display Line 27**. The front-panel display will dim to one-half brightness when the Sleep function is programmed. To view the current sleep time when the sleep function has been activated, press the **Sleep Button 10** once. The display will return to normal brightness, and the time until shutdown will appear in the **Lower Display Line 27**. After a few

seconds, the message will disappear and the display will return to half-brightness.

When the programmed sleep time has elapsed, the unit will automatically turn off. To cancel the Sleep function, press and hold the **Sleep Button 10** as the information display returns to normal brightness; continue to hold the button until the Sleep indicator numbers disappear and the words **SLEEP OFF** appear in the **Lower Display Line 27**.

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 front-panel **Main Power Switch 1**.

NOTE: All preset memories are lost if the unit is left turned off by using the **Main Power Switch 1** for more than four weeks.

Source Selection

- To select a source, press any of the **Input Selector Buttons 5 7 40 41** on the remote control.
- The input source may also be changed by pressing the front-panel **Input Source Selector Button 16**. Each press of the button will move the input selection through the list of available inputs.
- As the input is changed, the AVR 240 will automatically switch to the digital input (if selected), component video input, surround mode, output levels and night mode status, as well as any speaker configuration settings established by using the **INDEPENDENT** Bass Management setting, that were entered during the configuration process for that source.
- When the input source is changed, the new input name and the digital (or analog) audio input will appear in the **Upper Display Line 26**, and the current surround mode will appear in the **Lower Display Line 27**. The same messages will also appear momentarily in the on-screen display in the lower third of the screen (semi-OSD).
- When an audio source is selected, the last video input used remains routed to the **Video 1 Video and S-Video Outputs 27/35** and **Component Video, Composite Video and S-Video Monitor Outputs 13/22/32**. This permits you to simultaneously view and listen to different sources. This also allows you to choose a video source and then select the **6/8-Channel Direct Inputs 29** as the audio source.
- The front-panel **Video 4 Inputs 20/21**, **Optical 3 Digital Input 18** or the **Coaxial 3 Digital Input 19** may be used to connect a device such as a video

game or camcorder to your home entertainment system on a temporary basis. When the front-panel jacks are not in use, you may prefer to install the covers supplied with your receiver for a neater appearance. Simply snap them in place. If you wish to use the jacks, press on the left side of each cover to pivot and remove it.

- When DMP **Bridge** is selected as the source and a compatible iPod is inserted in an optional Harman Kardon **Bridge** that is connected to **Bridge DMP Connector 23** on the rear panel, navigation messages will appear on any video display connected to the AVR's **Video Monitor Outputs 22/32**. The remote control or front-panel controls may be used to navigate the iPod and access many of its functions. These messages will also appear in the front-panel display, and the iPod's battery may be charged. See the owner's guides for **Bridge** and your iPod for more information.

6-Channel/8-Channel Direct Input

- There are two input choices available for use with sources such as DVD-Audio and SACD players that are connected to the **6/8-Channel Direct Inputs 29**. Select the appropriate input according to the way your system and source equipment are configured:
 - **6 CH DIRECT** should be used when the SBR and SBL inputs are NOT in use. It is assumed that the input source device has its own internal bass management system. This input passes the input from the source directly through to the volume control without any analog to digital conversion and it mutes the unused input jacks to prevent unwanted noise from interfering with system performance.
 - **8 CH DIRECT** should be used when an input is connected to all eight **8-Channel Direct Inputs 29**. It is assumed that the input source device has its own internal bass management system. This input passes the input from the source directly through to the volume control without any analog-to-digital conversion.

Volume and Tone Control

- Adjust the volume to a comfortable level using the front-panel **Volume Control 23** or remote **Volume Up/Down Buttons 38**.
- To temporarily silence all speaker outputs, press the **Mute Button 42**. 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 flash in the **Upper Display Line 26**.

Press the **Mute Button 42** again to return to normal operation.

- You may adjust the bass and treble tone controls at any point during a listening session by pressing the **Tone Mode Button 5** until **TONE IN** appears in the **Lower Display Line 27**. Press the **Tone Mode Button 5** again until either **TREBLE MODE** or **BASS MODE** appears in the **Lower Display Line 5**, and then use the **◀▶ Buttons 10** to boost or cut the low or high frequencies by up to ± 10 dB, in 2dB steps, until the desired setting is achieved.
- You may also totally remove the tone controls from the circuit so that the output is "flat" at any time by pressing the **Tone Mode Button 5** and then pressing the **◀▶ Buttons 10** so that **TONE OUT** appears in the on-screen display and the **Lower Display Line 27**.
- The tone controls may also be adjusted using the **AUDIO SETUP** submenu as described on page 22.
- For private listening, plug the 1/4" stereo phone plug from a pair of stereo headphones into the front-panel **Headphone Jack 4**. When the headphone plug is connected, all speakers will be silenced and **DOLBY H:BP** will scroll once across the **Lower Display Line 27**, indicating that the headphone output is in the Bypass mode, and to confirm that no processing is being used. 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 **Dolby Mode Select Button 23** or the **Surround Mode Group Selector 7** to cycle through the three Dolby Headphone modes and select the one that you prefer.

Surround Mode Selection

One of the important features of the AVR 240 is its ability to reproduce a full multichannel surround sound field from digital sources, analog matrix surround-encoded programs and standard stereo programs.

Selection of a surround mode is based on personal taste, as well as the type of program source material being used. For example, motion pictures or TV programs bearing the logo of one of the major surround-encoding processes, such as Dolby Surround or DTS Stereo, may be played in either the Dolby Digital, Dolby Pro Logic II or IIx Movie, DTS Neo:6 Cinema, or Logic 7 5.1 or 7.1 Cinema surround modes.

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 Dolby Pro Logic 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.

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

Surround modes may be changed at any time by using either the front panel or remote control. Any changes made to the surround mode for that source will be retained in the AVR's menu, even after another source is selected, or if the AVR is placed in Standby mode. To select a new surround mode from the front panel, first press the **Surround Mode Group Selector Button 7** until the desired major surround mode group (e.g., Dolby, DTS or Logic 7) is selected. Next, press the **Surround Mode Selector Button 8** to choose the specific individual surround mode.

To select a surround mode using the remote, press the button for the major surround mode group that includes the mode you wish to choose from: **Dolby 23**, **DTS Surround 24**, **DTS Neo:6 29**, **Logic 7 25**, **Stereo 28** or **DSP Surround 11**. The first press of the button will show the current mode from that group. To cycle through the available modes in that group, press the button again until the desired mode appears in the **Lower Display Line 27**, the on-screen display and in the **Surround Mode Indicators 23**.

As the surround mode changes, the appropriate **Surround Mode Indicator 23** will light to indicate the current mode. At times, it is possible that more than one indicator will light. This can occur when the DSP Surround Off mode has been selected, or when post-processing is being used with an input signal, such as when the Dolby Digital 2.0 plus Dolby Pro Logic IIx mode is used to create a 7-channel presentation of a two-channel signal.

The Dolby Digital, Dolby Digital EX and DTS 5.1, DTS-ES Matrix and DTS-ES Discrete modes may only be selected when a digital input is in use and a digital signal in that format is present. In addition, when a digital source is present, the AVR 240 will automatically select and switch to the correct mode, regardless of the mode that has been previously selected. For more information on selecting digital sources, see the Digital Audio Playback section.

The Dolby Pro Logic IIx modes are available only when the AVR 240 has been configured for 6.1/7.1 operation by setting the Surround Back speakers as either **LARGE** or **SMALL** as described on page 27. These modes provide a matrixed 6.1-channel presentation of analog sources.

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 without any further digital processing.

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), press the **Stereo Button 23** until **SURROUND OFF** appears in the **Lower Display Line 27**, or press the **Surround Mode Group Selector 7** until the Stereo modes appear in the on-screen display and **Lower Display Line 27** and then press the **Surround Mode Select Button 8** until **SURROUND OFF** appears in the on-screen display and **Lower Display Line 27**.

When an analog audio source is in use, you may activate an analog bypass Surround Off mode; first, remove the tone controls from the processing circuitry by pressing the **Tone Mode Button 5** and using the **◀▶ Buttons 10 15** until the **TONE OUT** message appears in the **Lower Display Line 27**, or using the **AUDIO SETUP** menu.

If the tone controls are active (**TONE IN**), or if you have selected the digitized Surround Off mode, the DSP icon will appear in the **Surround Mode Indicators 23**, and the message **SURROUND OFF** will appear in the lower line of the semi-OSD display. The DSP icon indicates that the incoming signal is digitized and any bass management settings are applied. This mode is recommended when your front speakers are not capable of reproducing the lower frequencies and are thus used with a subwoofer.

When the DSP icon is not lit in Surround Off mode with an analog audio input in use, the AVR is in analog bypass mode. The signal is being routed directly to the volume control, without entering the digital domain and without any bass management settings being applied. This mode is desirable when your left and right speakers are capable of reproducing low frequencies, and when you wish to hear the analog source material in its pure form.

(Continued on page 36)

OPERATION

Surround Mode Chart

MODE	FEATURES
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 sound field 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, EX mode may be manually selected to derive a 6.1/7.1 output.
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 laser discs 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, newer discs with special DTS-ES encoding will be decoded to provide six discrete, full-bandwidth channels plus a separate low-frequency channel.
Dolby Pro Logic II Movie Music Game Pro Logic	Dolby Pro Logic II decodes full-range discrete left, center, right, right surround and left surround channels from matrix surround-encoded programs or conventional stereo sources when an analog input is in use. The Dolby Pro Logic II Movie mode is optimized for movie soundtracks, while the Pro Logic II Music mode should be used with musical selections. Game mode ensures that special effects are routed to the surround channels, while delivering their full impact using the subwoofer, thus fully immersing the player in the universe of the video game. The Pro Logic mode activates original Pro Logic processing for those who prefer that presentation.
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 6.1/7.1 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 player in the universe of the video game. Dolby Pro Logic IIx post processing may be available with some DTS digital sources, depending on the number of channels present in the input signal, to provide a 6.1-channel presentation in movie or music mode.
Logic 7 Cinema Logic 7 Music Logic 7 Enhance	Exclusive to Harman Kardon for A/V 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 Cinema mode should be used with any source that contains Dolby Surround or similar matrix encoding. Logic 7 Cinema delivers increased center-channel intelligibility, and more accurate placement of sounds with fades and pans that are much smoother and more realistic than with other decoding techniques. The Logic 7 Music mode is recommended for analog or PCM stereo sources. Logic 7 Music 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 Enhance mode is an extension of the Logic 7 mode that is primarily used with musical programs. Logic 7 Enhance 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.
DTS Neo:6 Cinema DTS Neo:6 Music	These two modes are available when any analog or DTS Digital 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 3 Stereo	Uses the information contained in a two-channel analog or PCM (44.1 or 48kHz) program, or with the tuner, to create center-channel information. In addition, the information that is normally sent to the rear-channel surround speakers is carefully mixed in with the front-left and front-right channels for increased realism. Use this mode when you have a center channel speaker but no surround speakers.

Dolby Virtual Speaker Reference Wide	Dolby Virtual Speaker uses advanced technology to simulate the sonic signature of a speaker location even when there is no speaker physically present in that location. The Reference ("REF") mode activates any missing speakers to simulate a 5.1 presentation with accurate localization. The Wide mode virtualizes the locations of the front-channel speakers to create a wider image and a more enveloping sound field. Dolby Virtual Speaker – Reference is available for use with two or three actual speakers, and Dolby Virtual Speaker – Wide may be used with systems consisting of two, three, four or five speakers (not including the subwoofer). The specific mode available will vary depending on the number of channels in the incoming Dolby Digital signal.
Theater	The Theater mode creates a sound field that resembles the acoustic feeling of a standard live-performance theater. Depending on whether you have configured your surround back speakers as active, 5-channel or 6-channel versions of this mode may be available.
Hall 1, Hall 2	The two Hall modes create sound fields that resemble a small (Hall 1) and medium-sized (Hall 2) concert hall. Depending on whether you have configured your surround back speakers as active, 5-channel or 6-channel versions of this mode may be available.
VMAx Near VMAx Far	When only the two front-channel loudspeakers are used, Harman's patented VMAx mode delivers a three-dimensional sound space with the illusion of "phantom speakers" at the center and surround positions. The VMAx Near Field mode should be selected when your listening position is less than five feet from the speakers. The VMAx Far Field mode should be selected when your listening position is greater than five feet from the speakers.
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 is available at any time. Ideal for playing music in situations such as a party, it places the same signal at the front-left and surround-left, and 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)	This mode turns off all surround processing and presents the pure left- and right-channel presentation of two-channel stereo programs. When used with an analog audio source, you may select between a digitized Surround Off mode, in which the incoming signal is digitized and any bass management settings are applied, or an analog bypass Surround Off mode, in which the incoming signal is passed directly to the volume control and a full-range signal is sent to your left and right main speakers.
Dolby Headphone DH1 DH2 DH3	Dolby Headphone enables ordinary stereo headphones to portray the sound of a five-speaker surround-playback system. The DH1 mode creates a headphone presentation that resembles a small, well-damped room and is appropriate for use with both movies and music-only recordings. The DH2 mode creates a more acoustically live room particularly suited to music listening. The DH3 mode creates a larger room, more like a concert hall or movie theater. The Bypass mode sends a "pure stereo" feed to the headphones.

For additional information on the specifics of surround modes and processing, information about Dolby modes may be found at www.dolby.com. Information about DTS modes is available at www.dtsonline.com.

Digital Audio Playback

Digital audio is a major advancement over older analog surround processing systems such as Dolby Pro Logic. It delivers five, six or seven discrete channels: left front, center, right front, left surround, right surround and optionally one or two surround back channels. Each channel reproduces full frequency range (20Hz to 20kHz) and offers dramatically improved dynamic range and significant improvements to signal-to-noise ratios. In addition, digital systems have the capability to deliver an additional channel that is specifically devoted to low-frequency information. This is the ".1" channel referred to when you see these systems described as "5.1," "6.1" or "7.1". The bass channel is separate from the other channels, but since it is intentionally bandwidth-limited, sound designers have given it that unique designation.

Dolby Digital

Dolby Digital is a standard part of DVD, and is available on specially encoded LD discs and satellite broadcasts and it is a part of the high-definition television (HDTV) system.

An optional, external RF demodulator is required to use the AVR 240 to listen to the Dolby Digital soundtracks available on laser discs. Connect the RF output of the LD player to the demodulator and then connect the digital output of the demodulator to the **Optical or Coaxial Inputs 18 19 21 26** of the AVR 240. No demodulator is required for use with DVD players or DTS-encoded laser discs.

DTS

DTS is another digital audio system that is capable of delivering 5.1 or 6.1 discrete or matrix sound field reproduction. Although both DTS and Dolby Digital are digital, they use different methods of encoding the signals, and thus they require different decoding circuits to convert the digital signals back to analog.

DTS-encoded soundtracks are available on select DVD and LD discs, as well as on special audio-only DTS discs. You may use any LD or CD player equipped with a digital output to play DTS-encoded discs with the AVR 240. All that is required is to connect the player's output to either an **Optical or Coaxial Input** on the rear panel **21 26** or front panel **18 19**.

In order to listen to DVDs encoded with DTS soundtracks, the DVD player must be compatible with the DTS signal as indicated by a DTS logo on the player's front panel. Early DVD players may not be able to play DTS-encoded DVDs. This does not indicate a problem with the AVR 240, as some players cannot pass the DTS signal through to the digital outputs. If you are in doubt as to the capability of your DVD player to handle DTS discs, consult the player's owner's manual.

IMPORTANT NOTE: Many DVD players have a default setting that does not pass through the DTS data, even

though the machine is capable of doing so. If your DVD player has the "DTS Digital Out" logo but does not trigger DTS playback in the AVR 240, change the player's settings in the "Audio" or "Bitstream" configuration menu so that DTS playback is enabled. The method for doing this will vary with each player. In some cases, the proper menu choice will be "Original," while in others it will be "DTS." Consult the owner's manual for your player to find the specific information to find the proper setting.

Selecting a Digital Source

To utilize either digital mode, you must have properly connected a digital source to the AVR 240. Connect the digital outputs from DVD players, HDTV receivers, satellite systems or CD players to the **Optical or Coaxial Inputs 18 19 21 26**. In order to provide a backup signal and a source for analog stereo recording, the analog outputs provided on digital source equipment should also be connected to their appropriate inputs on the AVR 240 rear panel (e.g., connect the analog stereo audio output from a DVD to the **DVD Audio Inputs 43** on the rear panel when you connect the source's digital outputs).

If you have not already configured an input for a digital source using the on-screen menus as shown on page 21, first select the input using the remote or front-panel controls as outlined in this manual. Next, select the digital source by pressing the **Digital Select Button 17 13** and then using the **▲/▼ Buttons 14** on the remote or the **◀▶ Selector Buttons 10** on the front panel to choose any of the **OPTICAL or COAXIAL** inputs, as they appear in the **Upper Display Line 26** or on-screen display. When the digital source is playing, the AVR 240 will automatically detect which type of digital data stream is being decoded and display that information in the **Upper Display Line 26**.

The AVR 240's Auto Polling feature searches both the digital and analog audio inputs assigned to a source for an incoming signal. Although the digital input is the default, if the digital stream is not present or is interrupted, the unit will automatically switch over to the analog inputs. If you wish to disable the auto-polling feature for any source, follow the instructions shown in the Input Setup section of this manual on page 22.

Digital Bitstream Indications

When a digital source is playing, the AVR 240 senses the type of bitstream data that is present. Using this information, the correct surround mode will automatically be selected. For example, DTS bitstreams will cause the unit to switch to DTS decoding, and Dolby Digital bitstreams will enable Dolby Digital decoding. When the unit senses PCM data from CDs or LDs, it will default to Logic 7 Music mode, although you may select any of the standard surround modes, such as Dolby Pro Logic II or Logic 7. Since the range of

available surround modes is dependent on the type of digital data that is present, the AVR 240 uses a variety of indicators and messages to let you know what type of signal is present. These messages will appear shortly after an input or surround mode is changed, and they will remain in the **Lower Display Line 27** for about five seconds before that portion of the display returns to the normal surround mode indication.

Surround Mode Channel Indications

For Dolby Digital and DTS sources, a three-digit indication will appear, showing the number of channels present in the data. An example of this type of display is **3 / 2 / . 1**.

The first number indicates how many discrete front channel signals are present.

- A "3" tells you that separate front left, center and front right signals are available. This will be displayed for 5.1- and 6.1-channel Dolby Digital and DTS programs.
- A "2" tells you that separate front left and right signals are available, but there is no discrete center channel signal. This will be displayed for Dolby Digital bitstreams that have stereo program material.
- A "1" tells you that there is only a mono channel available in the Dolby Digital bitstream.

The middle number indicates how many discrete surround channel signals are present.

- A "2" tells you that separate surround left and right signals are available. This will be displayed for 5.1- and 6.1-channel Dolby Digital and DTS programs.
- A "1" tells you that there is only a single, surround-encoded surround channel. This will appear for Dolby Digital bitstreams that have matrix encoding.
- A "0" indicates that there is no surround channel information. This will be displayed for two-channel stereo programs.

NOTE: The surround back channels in 6.1-/7.1-channel bitstreams, such as Dolby Digital EX and DTS-ES Discrete and Matrix programs, are not indicated using this numbering system. Instead, a message will appear to indicate whether EX or ES information is present (see below).

The last number indicates whether there is a discrete low-frequency effects (LFE) channel. This is the ".1" in the common abbreviation of "5.1" sound and is a special channel that contains only bass frequencies.

- A "1" tells you that an LFE channel is present. This will be displayed for Dolby Digital and DTS programs, as available.
- A "0" indicates that there is no LFE channel information available. However, even when there is no

dedicated LFE channel, low-frequency sound will be present at the subwoofer output when the speaker configuration is set to show the presence of a subwoofer.

The information in the right side of the display will tell you if the digital audio data contains a special flag signal that will automatically activate the appropriate 6.1 or 7.1 mode. This will be shown as **EX-ON** or **EX-OFF** for Dolby Digital bitstreams and **ES-ON** or **ES-OFF** for DTS bitstreams.

If the EX flag is off, and your receiver has been configured for 6.1/7.1 operation, you may manually turn on EX processing as appropriate by simply selecting the Dolby Digital EX surround mode as described on pages 22–23 and 33. When the ES flag is not present in a DTS bitstream, you may benefit from a 6.1-channel presentation by selecting the DTS+Neo:6 post-processing surround mode using the procedure described on pages 22–24 and 33. In that mode, the DTS Neo:6 algorithms will be used to derive the surround back channel from the DTS bitstream information.

Surround Mode Post Processing

Thanks to the power of the AVR 240's DSP processor, a variety of surround mode options are available for most digital signals to deliver either the native information or to produce an enhanced sound field to match the number of speakers in your system. The modes available and the number of channels available for each mode will vary depending on the incoming bitstream and the configuration of your system, and are listed in the tables on page 38. The modes may be selected in the usual manner by selecting the major Surround Mode Group first, and then scrolling through the options (see pages 22 and 33).

The incoming bitstreams are indicated in the **Lower Display Line 27** as described above. After you have selected a surround mode, after about five seconds, the bitstream will be displayed briefly before the unit returns to normal operation. Therefore, you may ascertain the current bitstream by pressing the button for the major Surround Mode Group and waiting for a few moments for the bitstream to appear in the **Lower Display Line 27**. The bitstream information will also be displayed after the source input has been changed.

To use the tables on page 38, match the indication in the display to the Incoming Bitstream listed in the left column. The available surround modes are shown to the right.

See page 43 for information on setting the system to use a surround mode that you select by referring to these tables, rather than the default digital mode.

It is always a good idea to check the readout for the channel data to make certain that it matches the audio logo information shown on the back of a DVD pack-

age. In some cases, you will see the indication for "2/0/0" even when the disc contains a full 5.1, or 3/2/.1 signal. When this happens, check the audio output settings for your DVD player or the audio menu selections for the specific disc being played to make certain that the player is sending the correct signal to the AVR. See the tables on page 38.

PCM Audio Playback

PCM is the abbreviation for Pulse Code Modulation, which is the type of digital signal used for standard CD playback and other non-Dolby Digital and non-DTS digital sources such as Mini-Disc. The digital circuits in the AVR 240 are capable of high-quality digital-to-analog decoding, and they may be connected directly to the digital audio output of your CD player.

Connections may be made to either the rear-panel **Optical or Coaxial Inputs 21/26** or the front-panel **Digital Inputs 18/19**.

To listen to a PCM digital source, first select the input for the desired source (e.g., CD). Next press the **Digital Select Button 13/17** and then use the **▲/▼ Buttons 14** on the remote, or the **◀/▶ Selector Buttons 10** on the front panel, until the desired choice appears in the **Upper Display Line 26**.

During PCM playback, you may select any surround mode except Dolby Digital or DTS, as shown in the table on page 38. Note that for convenience, we have included the modes available for analog sources (including the tuner) in this chart.

When a PCM signal is detected, the **Lower Display Line 27** will briefly show a message with the letters PCM, in addition to a readout of the sampling frequency of the digital signal. In most cases this will be **44.1kHz** or **48kHz**, though in the case of specially mastered, high-resolution audio discs you will see a **96kHz** indication.

Speaker/Channel Indicators

In addition to the bitstream indicators, the AVR 240 features a set of unique channel-input indicators that tell you how many channels of digital information are being received and/or whether the digital signal is interrupted. (See Figure 16.)

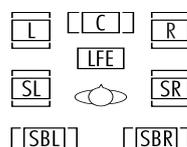


Figure 16

The letters inside the boxes tell you which channels are receiving an input signal. Since conventional analog audio is only two channels, the "L" and "R" letters will light with any analog source. When a digital source is in use you will see letters displayed that correspond to the number of channels in the incoming data

stream, which may be just the L and R for two-channel PCM or 2.0 Dolby Digital material. When a 5.1 signal is being received, the L/C/R/SL/SR indicators will light, with the LFE indication also being shown when an LFE signal is present. All seven indicators, including the SBL/SBR letters, will light for a 7.1 signal, and a horizontal line is shown to connect the SBL/SBR indicators when a 6.1 source is in use.

It is important to note that although Dolby Digital, for example, is referred to as a "5.1" system, not all Dolby Digital DVDs or programs are encoded for 5.1. Thus, it is sometimes normal for a DVD with a Dolby Digital soundtrack to trigger only the "L" and "R" indicators.

NOTE: Many DVD discs are recorded with both "5.1" and "2.0" versions of the same soundtrack. When playing a DVD, always be certain to check the type of material on the disc. Most discs show this information in the form of a listing or icon on the back of the disc jacket. When a disc does offer multiple soundtrack choices, you may have to make some adjustments to your DVD player (usually with the "Audio Select" button or in a menu screen on the disc) to send a full 5.1 feed to the AVR 240. It is also possible for the type of signal feed to change during the course of a DVD playback. In some cases, the menu screens and previews of special material will only be recorded in 2.0 audio, while the main feature is available in 5.1 audio. The AVR 240 will automatically sense changes to the bitstream and channel count and reflect them in these indicators.

The letters used by the **Speaker/Channel Input Indicators 25** also flash to indicate when a bitstream has been interrupted. This will happen when a digital input source is selected before the playback starts, or when a digital source such as a DVD is paused. The flashing indicators remind you that the playback has stopped due to the absence of a digital signal and not through any fault of the AVR 240. This is normal, and the digital playback will resume once the playback is started again.

The boxes around the channel indication letters are used to show which speakers are configured in your system. A small box around the letter indicates that a "Small" speaker has been assigned to that position, while a larger, double box indicates a "Large" speaker assignment.

Note that in some cases, such as when an analog stereo or 2.0 digital source is in use, you will see empty speaker position boxes, which indicates that the speaker is active and will receive sound, but that there is no discrete signal for that channel. In other cases you may see letters with no speaker boxes. This indicates that there is a discrete signal for that channel, but due to the mode in use (e.g., Dolby VS with a 5.1 source), there is no signal being sent to the channel.

(Continued on page 39)

OPERATION

Surround Mode Availability for Incoming Bitstreams and Audio Signals

For incoming Dolby Digital signals, the following modes are available:

Incoming Bitstream	Available Surround Modes
Dolby Digital 1/0/.0 or 1/0/.1	Dolby Digital, Dolby Digital Stereo, Dolby Virtual Speaker Reference (2 Speaker), Dolby Virtual Speaker Wide (2 Speaker), VMAx (N or F)
Dolby Digital 2/0/.0 or 2/0/.1	Dolby Pro Logic II (Movie, Music or Game), Dolby Pro Logic, Dolby Digital, Dolby Virtual Speaker Reference (2 or 3 Speaker), Dolby Virtual Speaker Wide (2, 3, 4 or 5 Speaker), Dolby Pro Logic IIx** (Movie, Music or Game), VMAx (N or F)
Dolby Digital 3/0/.0 or 3/0/.1	Dolby Digital, Dolby Digital Stereo, Dolby Virtual Speaker Reference (2 or 3 Speaker), Dolby Virtual Speaker Wide (2 or 3 Speaker), VMAx (N or F)
Dolby Digital 2/1/.0 or 2/1/.1	Dolby Digital, Dolby Digital Stereo, Dolby Virtual Speaker Reference (2 or 3 Speaker), Dolby Virtual Speaker Wide (2, 3, 4 or 5 Speaker), VMAx (N or F)
Dolby Digital 2/2/.0 or 2/2/.1	Dolby Digital, Dolby Digital Stereo, Dolby Virtual Speaker Reference (2 Speaker), Dolby Virtual Speaker Wide (2 or 4 Speaker), Dolby Digital EX**, Dolby Pro Logic IIx** (Movie or Music), VMAx (N or F)
Dolby Digital 3/2/.0, 3/2/.1 or EX	Dolby Digital, Dolby Digital Stereo, Dolby Virtual Speaker Reference (2 or 3 Speaker), Dolby Virtual Speaker Wide (2, 3, 4 or 5 Speaker), Dolby Digital EX**, Dolby Pro Logic IIx** (Movie or Music), VMAx (N or F)

For incoming DTS signals, the following modes are available:

Incoming Bitstream	Available Surround Modes
DTS 1/0/.0, 1/0/.1, 2/0/.0, 2/0/.1, 3/0/.0, 3/0/.1, 3/1/.0 or 3/1/.1	DTS, DTS Stereo
DTS 2/2/.0, 2/2/.1, 3/2/.0 or 3/2/.1	DTS, DTS Stereo, DTS+Neo:6**, DTS+Pro Logic IIx Movie**, DTS+Pro Logic IIx Music**
DTS 96/24	DTS 96/24, DTS Stereo, DTS+Neo:6**, DTS+Pro Logic IIx Movie**, DTS+Pro Logic IIx Music**
DTS-ES Matrix	DTS-ES Matrix**, DTS, DTS Stereo, DTS+Pro Logic IIx Movie**, DTS+Pro Logic IIx Music**
DTS-ES Discrete	DTS-ES Discrete**, DTS, DTS Stereo, DTS+Pro Logic IIx Movie**, DTS+Pro Logic IIx Music**

For incoming analog and PCM signals, the following modes are available:

Incoming Signal	Available Surround Modes
Analog (2-channel), Tuner, PCM 44.1kHz or 48kHz	Dolby Pro Logic II (Movie, Music or Game), Dolby Pro Logic, Dolby 3 Stereo, Dolby Virtual Speaker Reference (2 or 3 Speaker), Dolby Virtual Speaker Wide (2, 3, 4 or 5 Speaker), Dolby Pro Logic IIx** (Movie, Music or Game), DTS Neo:6 (3-channel Cinema, 5-channel Cinema or Music or 6-channel Cinema or Music**), Logic 7 (5-channel Cinema, Music or Enhance; 7-channel Cinema, Music or Enhance**), Hall 1 (5- or 6-channel**), Hall 2 (5- or 6-channel**), Theater (5- or 6-channel**), VMAx (N or F), Surround Off***, 5-Channel Stereo, 7-Channel Stereo**, DSP Surround Off
PCM 96kHz	Dolby Pro Logic II (Movie or Music), Dolby Pro Logic, Dolby Pro Logic IIx** (Movie or Music), Logic 7 (5-channel Cinema, Music or Enhance; 7-channel Cinema, Music or Enhance**), DSP Surround Off

The Dolby Pro Logic IIx, Dolby Digital EX, DTS+Neo:6, DTS+Dolby Pro Logic IIx, DTS-ES Matrix, DTS-ES Discrete, DTS Neo:6 (6-channel), Logic 7 (7-channel), Hall 1 (6-channel), Hall 2 (6-channel), Theater (6-channel) and 7-channel Stereo modes are only available when the AVR has been configured for 6.1/7.1 operation by configuring the Surround Back channels as **LARGE or **SMALL**.

***The Surround Off (analog bypass) mode is only available for analog sources or the tuner, and requires that the tone controls be removed from the circuitry for "flat" response. Otherwise, the DSP Surround Off mode may be selected when a 2-channel presentation is desired.

Night Mode

A special feature of Dolby Digital is the Night mode, which enables specially encoded Dolby Digital input sources to be played back with full digital intelligibility while reducing the minimum peak level by 1/4 to 1/3. This prevents abruptly loud transitions from disturbing others, without reducing the impact of the digital source. The Night mode is available only when Dolby Digital signals with special data are being played.

The Night mode may be engaged when a Dolby Digital DVD is playing by pressing the **Night Mode Button 12** on the remote. Next, press the **▲/▼ Buttons 14** to select either the middle-range or full-compression versions of the Night mode. To turn the Night mode off, press the **▲/▼ Buttons 14** until the message in the lower third of the video display and in the **Lower Display Line 27** reads **D-RANGE OFF**.

The Night mode may also be selected to always be on at either level of compression using the options in the **DOLBY** menu. See page 23 for information on using the menus to set this option.

IMPORTANT NOTES ON DIGITAL PLAYBACK:

- When the digital playback source is stopped, or in a pause, fast-forward or chapter-search mode, the digital audio data will momentarily stop, and the channel position letters inside the **Speaker/Channel Input Indicators 25** will flash. This is normal and does not indicate a problem with either the AVR 240 or the source machine. The AVR 240 will return to digital playback as soon as the data is available and when the machine is in a standard play mode.
- When playing DVDs or viewing television signals with digital audio, the number of channels and format of the incoming bitstream may vary depending on the portion of the DVD being viewed (e.g., trailers, director's commentary), or when commercials or local station identification is broadcast. The AVR 240 will automatically react to changes in the incoming signal.
- Some television system broadcasters are not capable of transmitting a 5.1 digital signal. Therefore, although the program material may be encoded in the Dolby Digital or DTS formats, the actual broadcast may only be a 2.0 signal. Check with your cable or satellite provider for more information.
- Although the AVR 240 will decode virtually all current DVD movies, CDs and HDTV sources, it is possible that some future digital sources may not be compatible with the AVR 240.
- Not all digitally encoded programs contain full 5.1- or 6.1-channel audio. Consult the program guide that accompanies the DVD to determine which type

of audio has been recorded on the disc. The AVR 240 will automatically sense the type of digital surround encoding used and will adjust to accommodate it.

- When some digital sources are playing, you may not be able to select some of the analog surround modes such as Dolby Pro Logic II or IIx, Dolby 3 Stereo, Hall, Theater or Logic 7. Refer to the tables on page 38 for more information.
- When a Dolby Digital or DTS source is playing, it is not possible to make an analog recording using the **Tape Outputs 3** and **Video 1 Audio Outputs 35**. However, the digital signals will be passed through to the **Digital Audio Outputs 19/20**.

Tuner Operation

The AVR 240's tuner is capable of tuning AM, FM and FM Stereo broadcast stations. Stations may be tuned manually, or they may be stored as favorite station presets and recalled from a 30-position memory.

Station Selection

1. Press the **AM/FM Tuner Select Button 7** on the remote to select the tuner as an input. The tuner may be selected from the front panel either by pressing the **Input Source Selector 16** until the tuner is active or by pressing the **Tuner Band Selector 11**.
2. Press the **AM/FM Tuner Select Button 7** or **Tuner Band Selector 11** again to switch between AM and FM so that the desired frequency band is selected.
3. Press the **Tuner Mode Button 17/19** to select manual or automatic tuning.

When the button is pressed so that **AUTO** appears in the **Lower Display Line 27** each press of the **Tuning Selectors 9/21** will put the tuner in a scan mode that seeks the next higher- or lower-frequency station with acceptable signal strength. An **AUTO ST TUNED** indication will momentarily appear when the station stops at a stereo FM station, and an **AUTO TUNED** indication will momentarily appear when an AM or monaural FM station is tuned. Press the Tuning buttons again to scan to the next receivable station.

When the button is pressed so that **MANUAL** appears in the **Lower Display Line 27** each tap of the Selector will increase or decrease the frequency by one increment. When the tuner receives a strong-enough signal for adequate reception, **MANUAL TUNED** will appear in the **Lower Display Line 27**.

4. Stations may also be tuned directly in either the automatic or manual mode. To enter a station's frequency directly, first select the AM or FM band as

desired by pressing the **AM/FM Tuner Select Button 7**. Next, press the **Direct Button 20**. Within five seconds of seeing the **DIRECT IN** scroll in the **Upper Display Line 26**, enter the station frequency by pressing the **Numeric Keys 18**. If you press an incorrect button while entering a direct frequency, press the **Clear Button 33** to start over.

NOTE: When FM reception of a station is weak, audio quality will be increased by switching to Mono mode by pressing the **Tuner Mode Button 17/19** so that **MANUAL** appears momentarily in the **Lower Display Line 27** and goes out. This will also activate manual tuning mode.

Preset Tuning

Using the remote, up to 30 stations may be stored in the AVR 240's memory for easy recall using the front panel controls or the remote.

To enter a station into the memory, first tune the station using the steps outlined above. Then:

1. Press the **Memory Button 34** on the remote. Two underscore lines will appear at the far right side of the **Upper Display Line 26**.
2. Within five seconds, press the **Numeric Keys 18** corresponding to the location where you wish to store this station's frequency. Once entered, the preset number will appear in the **Upper Display Line 26**.
3. Repeat the process after tuning any additional stations to be preset.

Recalling Preset Stations

- To manually select a station previously entered in the preset memory, press the **Numeric Keys 18** that correspond to the desired station's memory location.
- To manually tune through the list of stored preset stations one by one, press the **Preset Stations Selector Buttons 14/30** on the front panel or remote.

Recording

In normal operation, the audio or video source selected for listening through the AVR 240 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 **Tape Outputs 3** or **Video 1 Audio/Video** and **S-Video Outputs 27/35** in the Record mode.

When a digital audio recorder is connected to the **Digital Audio Outputs 19/20**, 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. In addition, the digital recorder must be compatible with the output signal. For example, the PCM digital input from a CD player may be recorded on a CD-R or MiniDisc, but Dolby Digital or DTS signals may not.
- Please make certain that you are aware of any copyright restrictions on any material you copy. Unauthorized duplication of copyrighted materials is prohibited by federal law.

Using The Bridge

When Harman Kardon's The Bridge (optional) is connected and a compatible iPod® is docked in The Bridge, press the The Bridge DMP Selector Button 40 to choose the iPod as the input source. Pressing the The Bridge DMP Selector Button 40 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. You may also select The Bridge DMP as the source from the front panel by repeatedly pressing the Input Source Selector 16 until DMP appears in the Upper Display Line 26, although no Input Indicator 24 will light.

When The Bridge is properly connected and a compatible iPod is properly docked, DMP/THE BRIDGE IS CONNECTED will scroll across the Upper Display Line 26. Once that message appears, use the remote or front-panel buttons to control the iPod. See the Function List Table on pages 47–48 for a listing of the remote control buttons that have been programmed to control the iPod. In brief, the Reverse Search, Play, Pause and Forward Search Buttons 27 and the ▲/▼/◀/▶ Buttons 14 15 and Set Button 16 may be used in a similar manner to the corresponding controls on the iPod. Complete details on operating an iPod using The Bridge and an AVR remote are furnished with The Bridge.

The front-panel controls may be used to access a limited number of iPod functions. Press the Tuner Mode Button 17 to play or pause the current track. The Tuning Selector 9 may be used to search reverse (left side of button) or forward (right side of button) through the tracks. Press the Tuner Band Selector 11 to call up the iPod's menu. Press the Preset Station Selectors 14 to scroll, and the Set Button 12 to select. For complete information on using the AVR's remote or front-panel controls to operate an iPod, see the instructions packed with The Bridge.

Output Level Trim Adjustment

Normal output level adjustment for the AVR 240 is established using EzSet+, or the internal test tone, as outlined on pages 30–31. In some cases, however, it may be desirable to adjust the output levels using program material such as a test disc, or a selection you are familiar with.

To adjust the output levels using program material, first set the reference volume for the front left and front right channels using the Volume Control 23 33.

If you are using a disc with test signals or an external signal generator as the source from which to trim the output levels, you may use a handheld SPL meter to guide you to the correct SPL levels. Set the meter to the C-Weighting Slow scale, and adjust the volume until the meter reads 75dB.

Once the reference level has been set, press the Channel Select Button 13 and FRONT LEVEL will appear in the Lower Display Line 27 and semi-OSD. To change the level, first press the Set Button 16, and then use the ▲/▼ Buttons 14 to raise or lower the level. DO NOT use the volume control, as this will alter the reference setting.

Once the change has been made, press the Set Button 16 and then press the ▲/▼ Buttons 14 to select the next output channel location you wish to adjust. To adjust the subwoofer level, press the ▲/▼ Buttons 14 until WOOFFER LEVEL appears in the Lower Display Line 27 and on screen.

Repeat the procedure as needed until all channels requiring adjustment have been set. When all adjustments have been made and no further adjustments are made for five seconds, the AVR 240 will return to normal operation.

The channel output for any input may also be adjusted using the full-OSD on-screen menu system. First, set the volume to a comfortable listening level using the Volume Control 23 33. Then, press the OSD Button 22 to bring up the MASTER MENU (Figure 1). Press the ▼ Button 14 until the on-screen ► cursor is next to the MANUAL SETUP line. Press the Set Button 16 to display the MANUAL SETUP submenu, and use the ▲/▼ Buttons 14 to scroll to the CHANNEL ADJUST line. Press the Set Button 16 again to display the CHANNEL ADJUST submenu.

Once the menu appears on your video screen, first use the ▲/▼ Buttons 14 to move the on-screen ► cursor so that it is next to the TEST TONE line. Press the ◀/▶ Buttons 15 so that OFF appears. This will turn off the test tone and allow you

to use your external test disc or other source material as the reference. Then, use the ▲/▼ Buttons 14 until the ► cursor is next to the TEST TONE SEQ line so that you may select between automatic and manual movement of the test tone from one channel to the next. When AUTO appears, the test tone will automatically circulate from one channel to the next, pausing momentarily at each channel. If you adjust the level of any channel, the test tone will remain paused at that channel until several seconds after your last adjustment before continuing to the next channel. When MANUAL appears, the test tone will remain paused at the last channel until you use the ▲/▼ Buttons 14 to select another channel.

At each channel position, use the ◀/▶ Buttons 15 to change the output level. Remember, the goal is to have the output level at each channel be equal when heard at the listening position.

If you wish to reset all the levels to their original factory default of 0dB offset, press the ▲/▼ Buttons 14 so that the on-screen cursor is next to the CHANNEL RESET line and press the ◀/▶ Buttons 15 so that the word ON appears. After the levels are reset, resume the procedure outlined above to reset the levels to the desired settings. When all adjustments are done, press the ▲/▼ Buttons 14 to move the on-screen ► cursor so that it is next to BACK TO MANUAL SETUP and then press the Set Button 16 if you wish to go back to the manual setup menu to make other adjustments. If you have no other adjustments to make, press the OSD Button 22 to exit the menu system.

NOTE: The output levels may be separately trimmed for each digital and analog surround mode by selecting that mode and following the instructions shown above.

Dim Function

Since the AVR 240 will often be used when movies or other video programming is viewed under low-light conditions, you may wish to lower the brightness of the front-panel displays and indicators so that they do not distract from the video presentation. You may dim the displays using the remote.

Simply press the Dim Button 8 once to dim the front panel to half the normal brightness level; press it again to turn the displays off. Note that when the displays are dimmed or turned off, the blue Power Indicator 2 will remain lit as a reminder that the AVR is still turned on. The accent lighting for the Volume Control 23 will dim when the panel displays are at half-brightness.

All changes to the front-panel brightness level are temporary; the displays will return to full-brightness

after the AVR is turned off and then on again. To return the displays to full brightness without turning the unit off, press the **Dim Button** **8** as needed until the displays are on.

In addition to lowering the brightness of the displays or turning them off completely, you may wish to have them appear whenever a button on the remote or front panel is pushed, and then gradually fade out after a set time period. You may do this by making the appropriate settings in the **VFD FADE TIME OUT** line of the **ADVANCED SELECT** Menu, as shown on page 42.

Memory Backup

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

ADVANCED FEATURES

The AVR 240 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 do provide additional options.

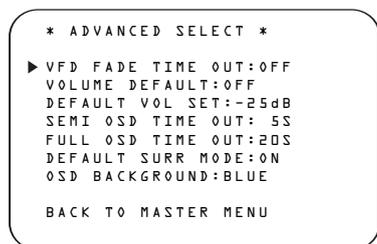


Figure 17

Front-Panel-Display Fade

In normal operation, the front-panel displays and indicators remain on at full brightness, although you may also dim them or turn them off using the **Dim Button 8** (see pages 12 and 40). As an additional option, you may also set the AVR so that the displays are on whenever a button is pressed on the front panel or remote, but then fade out after a set period of time.

To set the front-panel displays to the Fade mode, press the **OSD Button 22** to bring the **MASTER MENU** (Figure 1) to the screen. Press the **▲/▼ Buttons 14** so that the **▶** cursor is pointing to the **ADVANCED** line, and press the **Set Button 16** to enter the **ADVANCED SELECT** menu (Figure 17).

With the **ADVANCED SELECT** menu on your video display, press the **▲/▼ Buttons 14** so that the **▶** cursor is pointing to the **VFD FADE TIME OUT** line. Next, press the **◀/▶ Buttons 15** so that the amount of time that you wish the displays to fade out after a button is pressed is shown. Select **OFF** if you do not wish to have the front-panel displays fade out.

Once this time is set and the unit returned to normal operation, the displays will remain on for the time period selected whenever a button is pressed on the front panel or remote. After that time they will gradually fade out, with the exception of the **Power Indicator 2**, which will remain on to remind you that the AVR is turned on. Note that if the displays have been turned completely off using the **Dim Button 8**, the Fade function will not operate.

If you wish to make adjustments to other items on the **ADVANCED SELECT** menu, press the **▲/▼ Buttons 14** to place the **▶** cursor next to the desired item, or place the **▶** cursor next to the **BACK TO MASTER MENU** line and press the **Set Button 16** to make an adjustment to another menu. If you have completed all adjustments, press the **OSD Button 22** to exit the menu system.

Turn-On Volume Level

As is the case with most audio/video receivers, when the AVR 240 is turned on, it will always return to the volume setting in effect when the unit was turned off. However, you may prefer to always have the AVR 240 turn on at a specific setting, regardless of what was last in use when the unit was turned off. To change the default condition so that the same volume level is always used at turn-on, you will need to make an adjustment in the **ADVANCED SELECT** menu. To start the adjustment, press the **OSD Button 22** to bring the **MASTER MENU** (Figure 1) to the screen. Press the **▼ Button 14**, until the on-screen **▶** cursor is next to the **ADVANCED** line. Press the **Set Button 16** to enter the **ADVANCED SELECT** menu (Figure 17).

At the **ADVANCED SELECT** menu make certain that the on-screen **▶** cursor is next to the **VOLUME DEFAULT** line by pressing the **▲/▼ Buttons 14** as needed. Next, press the **▶ Button 15** so that the word **ON** is shown in the video display. Next, press the **▼ Button 14** once so that the on-screen **▶** cursor is next to the **DEFAULT VOL SET** line. To set the desired turn-on volume, press the **◀/▶ Buttons 15** until the desired volume level is shown on the **DEFAULT VOL SET** line. This setting may NOT be made with the regular volume controls.

NOTE: Since the setting for the turn-on volume cannot be heard while the setting is being made, you may wish to determine the setting before making the adjustment. To do this, listen to any source and adjust the volume to the desired level using the regular **Volume Controls 23/38**. When the desired volume level to be used at turn-on is reached, make a note of the setting as it appears in the lower third of the video screen or in the **Lower Display Line 27**. (A typical volume level will appear as a negative number such as **-25dB**.) When making the adjustment, use the **◀/▶ Buttons 15** to enter this setting.

The turn-on volume default will remain in effect until it is changed or turned off in this menu, even when the unit is turned off.

If you wish to make other adjustments, press the **▲/▼ Buttons 14** until the on-screen **▶** cursor is next to the desired setting or the **BACK TO MASTER MENU** line and press the **Set Button 16**. If you have no other adjustments to make, press the **OSD Button 22** to exit the menu system.

Semi-OSD Settings

The semi-OSD system places one-line messages at the lower third of the video display screen whenever the Volume, Input Source, Surround mode, tuner

frequency or any of the configuration settings are changed. The semi-OSD system is helpful in that it provides feedback on any control changes or remote commands using the video display when it is difficult to view the front-panel displays. However, you may occasionally prefer to turn these displays off or adjust the length of time the displays remain on the screen. Both of those options are possible with the AVR 240. This setting will also determine the length of time that track identification and play time messages will appear on your video display when The Bridge is in use.

To change the length of time that the semi-OSD displays remain on the screen, or to turn them off, go to the **ADVANCED SELECT** menu as outlined earlier, and press the **▲/▼ Buttons 14** as needed, until the on-screen **▶** cursor is next to the **SEMI OSD TIME OUT** line. Next, press the **◀/▶ Buttons 15** until the desired time in seconds or the word **OFF** is displayed. This is a permanent setting change, and the time-out entry will remain in effect until it is changed, even when the unit is turned off.

If you wish to make other adjustments, press the **▲/▼ Buttons 14** until the on-screen **▶** cursor is next to the desired setting or the **BACK TO MASTER MENU** line and press the **Set Button 16**. If you have no other adjustments to make, press the **OSD Button 22** to exit the menu system.

Full-OSD Time-Out Adjustment

The **FULL OSD** menu system is used to simplify the setup and adjustment of the AVR 240, using a series of on-screen menus. The factory default setting for these menus leaves them on the screen for 20 seconds after a period of inactivity before they disappear from the screen (Time-Out). Time-Out is a safety measure to prevent image retention of the menu text in your monitor or projector, which might happen if it were left on indefinitely. However, some viewers may prefer a slightly longer or shorter period before the display disappears.

To change the full-OSD Time-Out, you will need to make an adjustment in the **ADVANCED SELECT** menu (Figure 17). To start the adjustment, press the **OSD Button 22** to bring the **MASTER MENU** to the screen. Press the **▼ Button 14**, until the on-screen **▶** cursor is next to the **ADVANCED** line. Press the **Set Button 16** to enter the **ADVANCED** menu (Figure 17).

At the **ADVANCED SELECT** menu (Figure 17) make certain that the on-screen **▶** cursor is next to the **FULL OSD TIME OUT** line by pressing the **▲/▼ Buttons 14** as needed. Next, press the **◀/▶ Buttons 15** until the desired time is displayed in seconds. This is a permanent setting change,

and the Time-Out entry will remain in effect until it is changed, even if the unit is turned off.

If you wish to make other adjustments, press the **▲/▼ Buttons 14** until the on-screen **▶** cursor is next to the desired setting or the **RETURN TO MASTER MENU** line and press the **Set Button 16**. If you have no other adjustments to make, press the **OSD Button 22** to exit the menu system.

Default Surround Mode

In normal operation, when the AVR 240 senses a Dolby Digital or DTS digital audio data stream, it will automatically default to the surround mode encoded on the DVD disc or in the digital video broadcast. (If a two-channel analog or PCM signal is detected, the AVR will default to the Logic 7 Music/7.1 mode, or the last surround mode you selected for that source.) 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. As described on pages 36–38, you may select from several available choices of Dolby or DTS modes, depending on the number of channels you have configured your AVR for and the format of the incoming bitstream.

The AVR 240 allows you to set the unit so that it will either use the default mode or switch to your desired mode. If you wish to set the AVR so that the surround mode information as it is 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 you selected when a Dolby Digital or DTS source was playing, with the **ADVANCED SELECT** menu on screen, press the **▲/▼ Buttons 14** so that the **▶** cursor is pointing to the **DEFAULT SURR MODE** line. Press the **▲/▼ Buttons 15** so that **OFF** appears. The unit will now switch to the last selected mode instead of the disc's default mode for Dolby and DTS digitally encoded data streams.

This setting does not apply to standard PCM digital inputs or to analog sources (including the tuner). 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 on-screen **▶** cursor is next to the desired setting or the **BACK TO MASTER MENU** line and press the **Set Button 16**. If you have no other adjustments to make, press the **OSD Button 22** to exit the menu system.

Full-OSD Background Color

When the full-OSD menu system is in use, the default display appears with a solid blue background with white characters. If you wish, you may select a solid black background as the default.

This setting may be changed by pressing the **OSD Button 22** to display the **MASTER MENU**. Use the **▲/▼ Buttons 14** to scroll down to the **ADVANCED** line, and press the **Set Button 16** to select the **ADVANCED SELECT** submenu. Press the **▲/▼ Buttons 14** again to scroll to the **OSD BACKGROUND** line.

When **BLUE** appears, the full-OSD menus will appear on screen with a solid blue background. Press the **▲/▼ Buttons 15** until **BLACK** appears to display the full-OSD menus on a solid black background instead.

This setting will be retained even when the AVR 240 is turned off to the Standby mode.

If you wish to make other adjustments, press the **▲/▼ Buttons 14** until the on-screen **▶** cursor is next to the desired setting or the **BACK TO MASTER MENU** line and press the **Set Button 16**. If you have no other adjustments to make, press the **OSD Button 22** to exit the menu system.

PROGRAMMING THE REMOTE

The AVR 240 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, cassette decks, TV sets, cable boxes, VCRs, satellite receivers and other home theater equipment. Once the AVR 240'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 Device Codes

The AVR 240 remote is factory-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 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 following pages 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 240 remote.
3. Press and hold both the **Input Selector 5** for the product you wish to control (e.g., VCR, TV) and the **Mute Button 42** at the same time. When the red light under the **Input Selector 5** stays lit and the **Program Indicator 3** turns amber and begins flashing, release the buttons. It is important that you begin the next step within 20 seconds.
4. Point the AVR 240's remote toward the unit to be programmed, and enter the first three-digit code using the **Numeric Keys 18**. If the unit turns off, the correct code has been entered. Press the **Input Selector 5** again, and note that the red light will flash three times before going dark to confirm the entry.
5. If the device to be programmed in does NOT turn off, continue to enter three-digit codes until the equipment turns off. At this point, the correct code has been entered. Press the **Input Selector 5** again and note that the red light under the **Input Selector 5** 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 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 the power control, but 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 a code cannot be entered to turn the unit off, if the code for your product does not appear in the tables in this manual, or if not all functions operate properly, try programming the remote with the Auto Search Method.

NOTE: If you are using your iPod with a TEN Technology product, you may use the direct-code entry procedure to program remote control codes for the TEN Technology product. Select the **DMP Input Selector 5** in Steps 3 through 5, and enter product code 002 in Step 4.

Auto Search Method

If the unit you wish to include in the AVR 240's remote is not listed in the code tables in this manual 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:

1. Turn on the unit that you wish to include in the AVR 240 remote.
2. Press the **Input Selector 5** for the type of product to be entered (e.g., VCR, TV) and the **Mute Button 42** at the same time. Hold both buttons until the red light under the **Input Selector 5** stays lit and the **Program Indicator 3** turns amber and begins flashing. The next step must take place while the red light is on, and it must begin within 20 seconds after the light appears.
3. Point the AVR 240 remote toward the unit to be programmed, and press either the **▲** or **▼** **Button 14** repeatedly. Each press will send out a series of codes from the remote's built-in database. When the unit being programmed turns off, stop pressing the **▲**/**▼** **Buttons 14**, as that is your indication that the correct code is in use.
4. Press the **Input Selector 5**; the red light under the Input Selector will flash three times before going dark to confirm the entry.
5. 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 also 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 both the **Input Selector 5** for the device you wish to find the code for and the **Mute Button 42** at the same time. The **Program Indicator 3** will turn amber and begin flashing, and the red light under the **Input Selector 5** will stay lit. Release the buttons and begin the next step within 20 seconds.
2. Press the **Set Button 16**. The **Program Indicator 3** 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 pauses to determine the digit of the code. One blink is the number 1, two blinks is the number 2, and so forth. Ten blinks are 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 ten blinks indicates that the code has been set to 160.

For future reference, enter the setup codes for the equipment in your system here:

DVD _____ CD _____
VID1/VCR _____ VID2/CBL _____
VID2/SAT _____ VID3/TV _____
VID4 _____ TAPE _____

Macro Programming

Macros enable you to easily repeat frequently used combinations of commands with the press of a single button on the AVR 240's remote control. Once programmed, a macro will send out up to 19 different remote codes in a predetermined sequential order enabling you to automate the process of turning on your system, changing devices, or other common tasks. The AVR 240's remote can store up to five separate macro command sequences: one that is associated with the **Power On Button 1** and four more that are accessed by pressing the **Macro Buttons 30**.

1. Press the **Mute Button 42** and the **Macro Button 30** to be programmed or the **Power On Button 1** at the same time. An **Input Selector**

5 6 will light red, and the **Program Indicator 3** will flash amber.

- Enter the steps for the macro sequence by pressing the button for the actual command step. Although the macro may contain up to 19 steps, each button press, including those used to change devices, counts as a step. The **Program Indicator 3** will flash green to confirm each button press as you enter commands.

NOTE: While entering commands for Power On/Off of any device during a macro sequence, press the **Mute Button 42** for the Power On command. DO NOT press the actual Power button. Press the **Power Off Button 1** to program the Power Off command.

- When all the steps have been entered, press the **Sleep Button 10** to enter the commands. The red light under the **Input Selectors 5 6** will blink and then turn off.

Example: To program the Macro 1 button so that it turns on the AVR 240, TV and a cable box, follow these steps:

- Press the **Macro 1 Button 30** and **Mute Button 42** at the same time and then release them.
- Note that the **Program Indicator 3** will flash amber.
- Press the **AVR Selector 6**.
- Press the **Mute Button 42** to store the AVR 240's Power On command.
- Press the **VID 3 Input Selector Button 5** to indicate the next command is for "TV Power On."
- Press the **Mute Button 42** to store the TV Power On Command.
- Press the **VID 2 Input Selector Button 5** to indicate the next command is for "Cable Power On."
- Press the **Mute Button 42** to store the Cable Power On command.
- Press the **Sleep/Channel Up Button 10** to complete the process and store the macro sequence.

After following these steps, each time you press the **Macro 1 Button 30**, the remote will send the Power On command.

Erasing Macro Commands

To remove the commands that have been programmed into one of the Macro buttons, follow these steps:

- Press the **Mute Button 42** and the **Macro Button 30** that contains the commands you wish to erase.

- The **Program Indicator 3** will flash amber, and the LED under the **AVR Selector 6** will turn red.
- Within ten seconds, press the **Surround Mode Selector/Channel Down Button 11**.
- The red LED under the **AVR Selector 6** will go out, and the **Program Indicator 3** will turn green and flash three times before it goes out.
- When the **Program Indicator 3** goes out, the Macro has been erased.

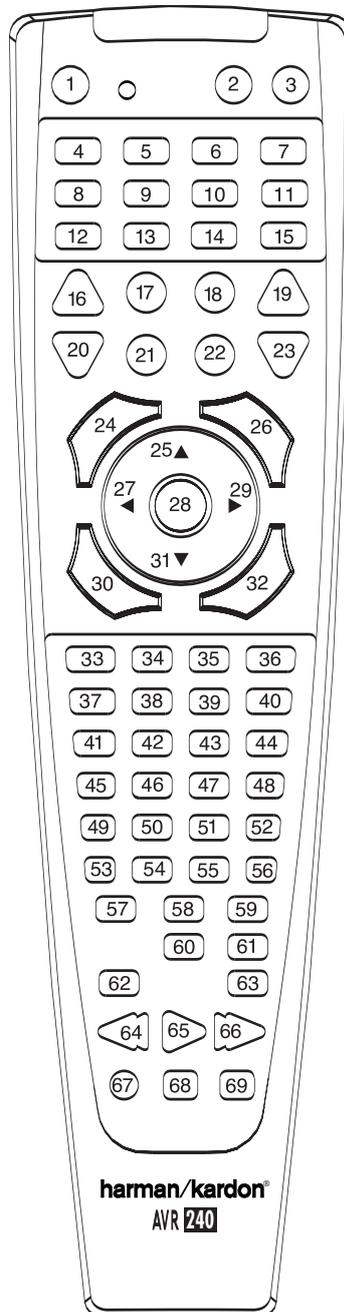


Figure 18

Programmed Device Functions

Once the AVR 240's remote has been programmed for the codes of other devices, press the appropriate **Input Selector 5** to change the remote from controlling the AVR 240 to controlling the additional product. When you press any one of the selectors, it will briefly flash in red to indicate that you have changed the device being controlled.

When operating a device other than the AVR 240, 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 240. 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 cable boxes. The Channel Up/Down indication is printed directly on the remote. For many standard CD players, cassette decks, VCRs and DVD functions, the standard function icons are printed on top of the buttons.

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 on pages 47 and 48. To use those tables, first check the type of device being controlled (e.g., TV, VCR). Next, look at the remote control diagram in Figure 18. 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. For example, button number 46 is the Direct button for the AVR 240, but it is the "Favorite" button for many cable television boxes and satellite receivers. Button number 32 is the Delay button for the AVR 240, but the Open/Close button for CD players.

NOTE: The numbers used to describe the button functions in Figure 18 for the purposes of describing how a button operates are a different set of numbers than those used in the rest of this manual to describe the button functions for the AVR 240.

NOTES ON USING THE AVR 240 REMOTE WITH OTHER DEVICES.

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

PROGRAMMING THE REMOTE

- When a button is pressed on the AVR 240 remote, the red light under the **Input Selector 5 6** 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 indicates that no function is programmed for the button being pushed.

Volume Punch-Through

The AVR 240's remote may be programmed to operate the **Volume Control 38** and **Mute 42** functions of either the TV or the AVR 240 in conjunction with any of the devices controlled by the remote. For example, since the AVR 240 will likely be used as the sound system for TV viewing, you may wish to have the AVR 240's volume activated, although the remote is set to run the TV. Either the AVR 240 or TV volume control may be associated with any of the remote's devices. The factory default setting is to have the AVR 240's volume activated for all devices except **TAPE**. To program the remote for Volume Punch-Through, follow these steps:

1. Press the **Input Selector 5** for the unit you wish to have associated with the volume control and the **Mute Button 42** at the same time until the red light appears under the **Input Selector 5**; the **Program Indicator 3** will flash amber.
2. Press the **Volume Up Button 38**; the **Program Indicator 3** will stop flashing and stay amber.
3. Press either the **AVR Selector 6** or the **Input Selector 5**, depending on which system's volume control you wish to have attached for the punch-through mode. The **Program Indicator 3** will blink green three times and then go out to confirm the data entry.

Example: To have the AVR 240's volume control activated even though the remote is set to control the TV, first press the **Video 3/TV Input Selector 5** and the **Mute Button 42** at the same time. Next, press the **Volume Up Button 38**, followed by the **AVR Selector 6**.

NOTE: Should you wish to return the remote to the original configuration after entering a Volume Punch-Through, you will need to repeat the steps shown above. However, press the same Input Selector in Steps 1 and 3.

Channel Control Punch-Through

The AVR 240's remote may be programmed to operate so that the channel control function for either the TV, cable or satellite receiver used in your system may be used in conjunction with one of the other devices controlled by the remote. For example, while using and controlling the VCR, you may wish to change channels on a

cable box or satellite receiver without having to change the device selected by the AVR 240 or the remote. To program the remote for Channel Control Punch-Through, follow these steps:

1. Press the **Input Selector Button 5 6** for the device you wish to have the channel control associated with and the **Mute Button 42** at the same time until the red light appears under the **Input Selector 5 6** and the **Program Indicator 3** flashes amber.
2. Press the **Volume Down Button 38**. The **Program Indicator 3** will stop flashing and stay amber.
3. Press and release the **Input Selector Button 5** for the device that will be used to change the channels. The **Program Indicator 3** will blink green three times and then go out to confirm the data entry.

Example: To control the channels using your cable box or satellite receiver while the remote is set to control the VCR, first press the **VID 1/VCR Input Selector Button 5** and the **Mute Button 42** at the same time. Next, release them and press the **Volume Down Button 38**, followed by the **VID 2/Cable/Sat Input Selector Button 5**.

NOTE: To remove the Channel Control Punch-Through and return the remote to its original configuration, repeat the steps shown in the example above. However, press the same Input Selector in Steps 1 and 3.

Transport Control Punch-Through

The AVR 240's remote may be programmed to operate so that the **Transport Control Functions 27** (Play, Stop, Fast Forward, Rewind, Pause and Record) for a VCR, DVD or CD will operate in conjunction with one of the other devices controlled by the remote. For example, while using and controlling the TV, you may wish to start or stop your VCR or DVD without having to change the device selected by the AVR 240 or the remote. The factory default setting is to have the DVD's transport controls activated when the **AVR, VID2/CABLE** or **SAT** or **VID3/TV** devices have been selected. To program the remote for Transport Control Punch-Through, follow these steps:

1. Press the **Input Selector 5 6** for the device you wish to have the channel control associated with and the **Mute Button 42** at the same time until the red light appears under the **Input Selector 5** and the **Program Indicator 3** flashes amber.
2. Press the **Play Button 27**. The **Program Indicator 3** will stop flashing and stay amber.

3. Press and release the **Input Selector Button 5** for the device that will be used to change the channels. The **Program Indicator 3** will blink green three times and then go out to confirm the data entry.

Example: To control the transport of a DVD player while the remote is set to control the TV, first press the **VID 3/TV Input Selector Button 5** and the **Mute Button 42** at the same time. Next, release them and press the **Play Button 27**, followed by the **DVD Input Selector Button 5**.

NOTES:

- To remove the Channel Control Punch-Through and return the remote to its original configuration, repeat the steps in the example above. However, press the same Input Selector in Steps 1 and 3.
- Before programming the remote for Volume, Channel or Transport Punch-Through, make certain that any programming needed for the specific TV, CD, DVD, cable or satellite receivers has been completed.
- The AVR 240 remote is preprogrammed at the factory so that the **Transport Control Functions 27** operate the DVD player whenever the AVR device is selected.

Resetting the Remote Memory

As you add components to your home theater system, occasionally you may wish to reset the remote to the original factory defaults and command codes by following these steps. Once the remote is reset, all commands or codes that you have entered will be erased and will need to be reentered:

1. Press any of the **Input Selector Buttons 5** and the **"0" Button 18** at the same time until the **Program Indicator 3** begins to flash amber.
2. Press the **"3" Button 18** three times.
3. The red LED under the **Input Selector 5** will go out and the **Program Indicator 3** will stop flashing and turn green.
4. The **Program Indicator 3** will remain green until the remote is reset. Note that this may take a while, depending on how many commands are in the memory that need to be erased.
5. When the **Program Indicator 3** goes out, the remote has been reset to the factory settings.

FUNCTION LIST

No.	Button Name	AVR Function	DVD	CD/CD-R	Tape	VCR (VID1)	TiVo (VID1)	CBL (VID2)	SAT (VID2)	TV (VID3)	The Bridge® (DMP)
1	Power On	Power On	Power On	Power On		Power On	Power On/Off	Power On	Power On	Power On	Power On
2	Power Off	Power Off	Power Off	Power Off		Power Off	TV Power	Power Off	Power Off	Power Off	Power Off
3	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute
4	AVR	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select
5	DVD	DVD Input Select	DVD Select	DVD Select	DVD Select	DVD Select	DVD Select	DVD Select	DVD Select	DVD Select	DVD Select
6	CD	CD Input Select	CD Select	CD Select	CD Select	CD Select	CD Select	CD Select	CD Select	CD Select	CD Select
7	Tape	Tape Input Select	Tape Select	Tape Select	Tape Select	Tape Select	Tape Select	Tape Select	Tape Select	Tape Select	Tape Select
8	VID 1 (VCR)	Video 1 Select	VCR Select	VCR Select	VCR Select	VCR Select	VCR Select	VCR Select	VCR Select	VCR Select	VCR Select
9	VID 2 (CBL/SAT)	Video 2 Select	CBL/SAT Select	CBL/SAT Select	CBL/SAT Select	CBL/SAT Select	CBL/SAT Select	CBL Select	SAT Select	CBL/SAT Select	CBL/SAT Select
10	VID 3 (TV)	Video 3 Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select
11	VID 4	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select	Video 4 Select
12	Dim	Dimmer	Dimmer								
13	AM/FM	Tuner Select	Tuner Select	Tuner Select	Tuner Select	Tuner Select	Tuner Select	Tuner Select	Tuner Select	Tuner Select	Tuner Select
14	6CH/8CH	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select	6/8 Ch. Input Select
15	The Bridge® (DMP)	The Bridge (DMP)	The Bridge (DMP) Select								
16	Sleep/CH+	Sleep	Audio			Channel +					
17	Test Tone	Test Tone									
18	TV		TV/DVD or V. OFF	Input Select		TV/VCR	TV Input	TV/CBL	TV/SAT	TV/VCR	
19	Vol Up	Volume Up	Volume Up	Volume Up		Volume Up					
20	Surr/CH-	DSP Surround Mode Select	Disc Menu or Title	CDR Select		Channel -					
21	Night	Night Mode Select	Subtitle On/Off	CDP Select							
22	Spare		HD Mode								
23	Vol Down	Volume Down	Volume Down	Volume Down		Volume Down					
24	CH/Guide	Channel Trim	Title or Disc Menu	Continuous Play			Guide	Info/Guide	Info/Guide		
25	▲	Move/Adjust Up	Up			Up	Up	Up	Up	Up	
26	Speaker/Menu	Speaker Adjust	Menu or Setup	Intro Scan		Menu	Menu	Menu	Menu	Menu	Menu
27	◀	Move/Adjust Left	Left			Left	Left	Left	Left	Left	Scroll -
28	Set	Set	Enter			Enter	Select	Enter	Enter	Enter	Select
29	▶	Move/Adjust Right	Right			Right	Right	Right	Right	Right	Scroll +
30	Digital/Exit	Digital Input Select	Open/Close				Return/Exit				
31	▼	Move/Adjust Down	Down			Down	Down	Down	Down	Down	
32	Delay/Prev. Ch.	Delay Adjust	Return or Status	Open/Close				Prev Channel	Prev Channel	Prev Channel	
33	1	1	1	1		1	1	1	1	1	
34	2	2	2	2		2	2	2	2	2	
35	3	3	3	3		3	3	3	3	3	
36	4	4	4	4		4	4	4	4	4	
37	5	5	5	5		5	5	5	5	5	
38	6	6	6	6		6	6	6	6	6	
39	7	7	7	7		7	7	7	7	7	
40	8	8	8	8		8	8	8	8	8	
41	Tun-M	Tuner Mode	Chapter+ or Zoom	Repeat							
42	9	9	9	9		9	9	9	9	9	
43	0	0	0	0		0	0	0	0	0	
44	Memory	Memory	Audio or Playlist	Time							

FUNCTION LIST

No.	Button Name	AVR Function	DVD	CD/CD-R	Tape	VCR (VID1)	TiVo (VID1)	CBL (VID2)	SAT (VID2)	TV (VID3)	Bridge (DMP)
45	Tuning Up	Tuning Up	Next Chapter	Track Direct		Cancel		PPV	Cancel	Sleep	
46	Direct	Direct Tuner Entry	Angle	Random Play				FAV	FAV		
47	Clear	Clear	Clear	Clear		Clear	Clear	Bypass	Next		
48	Preset Up	Preset Tune Up	Slow Forward	+10				Music	Alt		
49	Tuning Down	Tuning Down	Prev Chapter	Track Increment							
50	OSD	OSD		Program		OSD	Live TV	OSD	OSD	OSD	
51	D. Skip	Disc Skip (DVD)	Disc Skip	Disc Skip			Skip				
52	Preset Down	Preset Tune Down	Slow Rev								
53	M1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1		Macro 1	Macro 1	Macro 1	
54	M2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2		Macro 2	Macro 2	Macro 2	
55	M3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3		Macro 3	Macro 3	Macro 3	
56	M4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4		Macro 4	Macro 4	Macro 4	
57	Dolby Surround	Dolby Modes									
58	DTS Surround	DTS Digital Modes									
59	DTS Neo:6	DTS Neo:6 Select									
60	Logic 7	Logic 7 Select									
61	Stereo	Stereo Mode Select									
62	Skip Down	Skip – (DVD)	Step –	Skip –		Scan –	Thumbs Down	Skip – (DVD)	Skip – (DVD)	Skip – (DVD)	
63	Skip Up	Skip + (DVD)	Step +	Skip +		Scan +	Thumbs Up	Skip + (DVD)	Skip + (DVD)	Skip + (DVD)	
64	Rewind (◀◀)	R. Search (DVD)	R. Search	R. Search	Rewind	Rewind	R. Search	R. Search (DVD)	R. Search (DVD)	R. Search (DVD)	Skip-/R. Search
65	Play (▶▶)	Play (DVD)	Play	Play	R. Play/F. Play	Play	Play	Play (DVD)	Play (DVD)	Play (DVD)	Play
66	F F (▶▶▶)	F. Search (DVD)	F. Search	F. Search	Fast Fwd	Fast Fwd	F. Search	F. Search (DVD)	F. Search (DVD)	F. Search (DVD)	Skip+/F. Search
67	Record			Record	Record/Pause	Record	Record				
68	Stop	Stop (DVD)	Stop	Stop	Stop	Stop	Slow	Stop (DVD)	Stop (DVD)	Stop (DVD)	
69	Pause	Pause (DVD)	Pause	Pause		Pause	Pause	Pause (DVD)	Pause (DVD)	Pause (DVD)	Pause

SETUP CODE TABLE: TV

Manufacturer/Brand	Setup Code Number												
AIWA	027												
A MARK	122	132											
ADMIRAL	192												
AKAI	123	160											
AMPRO	164												
ANAM	045	106	109	112	122								
AOC	122	123	128										
BLAUPUNKT	084												
BROKSONIC	205	206											
CANDLE	123	128											
CAPEHART	059												
CENTURION	123	171											
CENTRONIC	045												
CITIZEN	045	123	128	132									
CLASSIC	045												
CONCERTO	128												
CONTEC	045												
CORANDO	172												
CORONADO	132												
CRAIG	045	157	158	159									
CROWN	045	132											
CURTIS MATHES	123	128	132										
CXC	045												
DAEWOO	045	087	102	105	106	108	111	114	116	119	127	128	132
DAYTRON	128	132											
DIGI LINK	200												
DYNASTY	045												
DYNATECH	063												
ELECTROHOME	115	132											
EMERSON	045	123	128	132	139	157	158	159	162	205			
FUNAI	045												
FUTURETECH	045												
GE	029	087	121	123	128	133	145	159	163				
GOLDSTAR/LG	101	110	122	128	132								
GRUNDIG	193												
HALL MARK	128												
HARMAN KARDON	201												
HITACHI	123	128	132	144	147								
INFINITY	148												
INKEL	120												
JBL	148												
JC PENNEY	115	123	128	132	145								
JENSEN	019												
JVC	079	087	134										
KAWASHO	173												
KEC	045												
KENWOOD	123	204											
KMC	132												
KTV	045	123	132	162									
LLOYTRON	172	173											
LODGENET	069												

SETUP CODE TABLE: TV

Manufacturer/Brand	Setup Code Number
LOGIK	069
LUXMAN	128
LXI	077 145 148
MAGNAVOX	030 123 128 132 145 148
MARANTZ	115 123 148
MATSUI	148
MEMOREX	069 128
METZ	084
MGA	115 123 128
MINERVA	084
mitsubishi	077 115 123 128 160 167 168
MTC	175 176
NATIONAL	148 177 179 180 181 182
NEC	115 121 123 125
NIKEI	045
ONKING	045
ONWA	045
OPTONICA	077
ORION	207 208 209 210 211
PANASONIC	087 148 169
PHILCO	045 115 123 128 132 148
PHILIPS	033 034 035 036 123 128 132 145 148
PIONEER	024 123 128
PORTLAND	128 132
PROSCAN	133
PROTON	059 122 128 132 165
QUASAR	032 087
RADIO SHACK	045 128 132 180 196 197
RCA	021 115 123 128 133 145 161 163
REALISTIC	045 167 196
RUNCO	152 153
SAA	183
SAMPO	059 123 128
SAMSUNG	020 022 124 128 132 145
SANYO	026 054
SCOTT	045 128 132
SEARS	128 132 145
SHARP	077 128 132
SIEMENS	084
SIGNATURE	069
SONY	028 031 117 130 136 194 212
SOUNDESIGN	045 128
SPECTRICON	122
SSS	045
SYLVANIA	025 123 128 145 148
SYMPHONIC	184
TANDY	077
TATUNG	063
TECHNICS	181
TECHWOOD	128

SETUP CODE TABLE: TV

Manufacturer/Brand	Setup Code Number
TEKNIKA	045 069 115 123 128 132
TELERENT	069
TERA	156
THOMSON	190 191
TMK	128
TOSHIBA	063 129 202
TOTEVISION	132
VIDEO CONCEPTS	160
VIDTECH	128
WARDS	069 128 132 148
YAMAHA	123 128
YORK	128
YUPITERU	045
ZENITH	069 090
ZONDA	122

SETUP CODE TABLE: VCR

Manufacturer/Brand	Setup Code Number
AIWA	040
AKAI	048 108 109 126
AMPRO	076
ASA	134
AUDIO DYNAMICS	018 048
BROKSONIC	110 147
CANDLE	134 135
CANON	135 140
CAPEHART	094
CITIZEN	134
COMCAST	006
CRAIG	045 116
DAEWOO	017 094 104
DAYTRON	094
DBX	018 048
DYNATECH	040
EMERSON	013 040 042 110 112
FISHER	017
FUNAI	040
GE	076 095 124
GO VIDEO	113
GOLDSTAR/LG	018 107
HARMAN KARDON	018 049
HITACHI	040 048
JC PENNEY	018 045
JENSEN	048
JVC	018 048 111 132
KENWOOD	020 048
LLOYD	040
LXI	020 040
MAGIN	045
MAGNAVOX	040
MARANTZ	018
MEMOREX	017 020 040 052 053 054 076
MGA	049
MITSUBISHI	049 131
MULTITECH	040
NAD	139
NATIONAL	140
NEC	018 048
NORDMENDE	048
OPTIMUS	159
ORION	147
PANASONIC	125 150 167 172
PHILCO	040
PHILIPS	040 075
PORTLAND	094
PULSAR	076
QUASAR	001 125
RADIO SHACK	055 134 140 142 158 159
RCA	095 124 125 157 172

SETUP CODE TABLE: VCR

Manufacturer/Brand	Setup Code Number
REALISTIC	017 020 040 045 159
SALORA	020
SAMSUNG	045 051 095 105 109
SANSUI	048 116 147
SANYO	017 020
SCOTT	110 112
SEARS	017 020
SHARP	129 156
SONY	080 129
SOUNDESIGN	040
SYLVANIA	040
SYMPHONIC	040
TANDY	017 040
TASHICO	134
TATUNG	048
TEAC	040 048
TEKNIKA	040
THOMAS	040
Tivo	002 003 004 005 007 008 012
TMK	013
TOSHIBA	112 155
TOTEVISION	045
UNITECH	045
VECTOR RESEARCH	018
VIDEO CONCEPTS	018 040
VIDEOSONIC	045
WARDS	040 045 112
YAMAHA	018 040 048
ZENITH	040 050 076 083

SETUP CODE TABLE: CD

Manufacturer/Brand	Setup Code Number
ADCOM	063 069
AIWA	072 111 118 156 170
AKAI	050 177 184
AUDIO TECHNICA	053
AUDIOACCESS	125
AUDIOFILE	211
BSR	044
CALIFORNIA AUDIO	109
CAPETRONIC	070
CARRERA	087
CARVER	136 140 141 143 144 145 185 186
CASIO	117 166
CLARINETTE	166
DENON	187 188 213
EMERSON	052 093 108
FISHER	055 095
FRABA	117
FUNAI	126
GE	164
GENEXXA	108
GOLDSTAR/LG	016 087
HAITAI	099 214
HARMAN KARDON	001 002 025 054 190
HITACHI	093
INKEL	216
JC PENNEY	098 147
JENSEN	153
JVC	176 195 196
KENWOOD	030 062 078 079 148 151 176 178 181
LOTTE	108
LUXMAN	077 102
LXI	164
MAGNAVOX	039 113
MARANTZ	058 084 191 192 193
MCINTOSH	194
MCS	080 098
MITSUMI	152
MODULAIRE	166
NAD	013 074 197 198
NAKAMICHI	199 200 201
NEC	069
NIKKO	053 055
ONKYO	037 038 045 046 171 175 202 203
OPTIMUS	065 089 091 092 099 104 212
PANASONIC	075 109 119 158 183 204
PHILIPS	039 138 149 209
PIONEER	071 094 100 112 123 131 161 162 215
PROTON	210
QUASAR	109
RADIO SHACK	126 166 213
RCA	024 081 093 150

SETUP CODE TABLE: CD

Manufacturer/Brand	Setup Code Number
RCX	169
REALISTIC	058 093 095 104 105 108 164 166
SANSUI	047 081 134 157 172
SANYO	033 082 095
SCOTT	108
SHARP	058 105 114 151 159 167 180 181
SHERWOOD	003 041 058 105 133
SONY	103 115 116 118 132 139 163 205 206 207 208 212 217
SOUNDSTREAM	124
SYMPHONIC	059 110
TAEKWANG	177
TEAC	011 058 085 086 106 107 110 121 137 146 154
THETA DIGITAL	039
TOSHIBA	013 074 097 151 155 173
VECTOR RESEARCH	087
VICTOR	120 130
WARDS	095
YAMAHA	019 031 053 061 135 169
YORK	166

SETUP CODE TABLE: DVD

Manufacturer/Brand	Setup Code Number
APEX DIGITAL	061
DENON	019 051
GE	003 004
GOLDSTAR/LG	005 055 064 066
HARMAN KARDON	001 002
JVC	006
MAGNAVOX	056
MARANTZ	059
MITSUBISHI	023
NAD	062
ONKYO	009 048
PANASONIC	024 030 044
PHILIPS	056
PIONEER	041 065
PROCEED	060
PROSCAN	003 004
RCA	003 004
SAMSUNG	053 054
SHARP	028
SONY	043 045
THOMSON	003 004
TOSHIBA	009 058 067
YAMAHA	030 063
ZENITH	005 055 064

SETUP CODE TABLE: SAT

Manufacturer/Brand	Setup Code Number
ALPHASTAR	472
ALPHASTAR DBS	450
ALPHASTAR DSR	442
BIRDVIEW	425
CHANNEL MASTER	320 321 325 361
CHAPARRAL	315 316 451
CITOH	360
DRAKE	313 317 318 413 481
DX ANTENNA	331 352 379 483
ECHOSTAR	395 397 452 453 463 477 478 484 485
ELECTRO HOME	392
FUJITSU	324 329 334
GENERAL INSTRUMENT	303 311 323 365 403 454 468 474
HITACHI DBS	455
HOUSTON TRACKER	463
HUGHES	437 489
JANIEL	366
JERROLD	454 468 484
KATHREIN	410
LEGEND	453
MACOM	317 365 369 370 371
MAGNAVOX	461 473
MEMOREX	453
NEXTWAVE	423
NORSAT	373
OPTIMUS	466
PACE DSS	487
PANASONIC	366 469
PANASONIC DBS	457
PANSAT	420
PERSONAL CABLE	418
PHILIPS	375
PICO	407
PRESIDENT	381 404
PRIMESTAR	412 454 468 475
RCA	301 439 465 490
RCA DSS	458
REALISTIC	349 480
SAMSUNG	442
SATELLITE SERVICE CO	335 388
SCIENTIFIC ATLANTA	339
SONY	405
STAR CHOICE DBS	459
STARCAST	347
SUPER GUIDE	327 423
TEECOM	330 333 390 391 393 409
TOSHIBA	302 426 460 461 462 470
UNIDEN	323 332 348 349 350 351 354 355 381 383 389 403 466 479 480
ZENITH	384 385 387 394 419 488

SETUP CODE TABLE: TAPE

Manufacturer/Brand	Setup Code Number
HARMAN KARDON	001

SETUP CODE TABLE: CBL

Manufacturer/Brand	Setup Code Number
ABC	001 011
ALLEGRO	111
AMERICAST	212
ARCHER	112
BELCOR	113
CABLE STAR	033 113
CITIZEN	111
COLOUR VOICE	085 090
DIGI	114
EAGLE	186
EASTERN	066 070
ELECTRICORD	039
EMERSON	112
FOCUS	116
G.I.	001 011 017 096 097
GC ELECTRONICS	113
GEMINI	032 060
GENERAL	210
GENERAL INSTRUMENT	210
GOODMIND	112
HAMLIN	056 099 100 101 117 175 208
HITACHI	001 188
JASCO	111
JERROLD	001 002 011 017 073 096 097 162 188 210
LINDSAY	118
MACOM	191
MAGNAVOX	017 019 068
MOVIE TIME	035 039
NSC	035 190
OAK	197 220
PACE	179
PANASONIC	053 176 177 189 214
PANTHER	114
PHILIPS	013 019 020 085 090
PIONEER	001 041 119 171 209 215 216
POPULAR MECHANICS	116
PRELUDE	120
PRIMESTAR	162
RADIO SHACK	111 112 213
RCA	053 214
RECOTON	116
REGAL	056 099 100 101 208

SETUP CODE TABLE: CBL

Manufacturer/Brand	Setup Code Number
REMBRANT	032
SAMSUNG	003 072 186
SCIENTIFIC ATLANTA	183 203 221 222
SEAM	121
SIGNATURE	001 188
SPRUCER	053 081 177 189
STARCOM	002 011 163
STARGATE	120
TANDY	024
TELECAPATION	028
TEXSCAN	036
TFC	122
TIMELESS	123
TOCOM	170 205
UNITED CABLE	011
UNIVERSAL	033 034 039 042 113
VIDEOWAY	124 211
VIEWSTAR	019 025 086 089 190
ZENITH	065 125 211 219
ZENTEK	116

SYMPTOM	CAUSE	SOLUTION
Unit does not function when Main Power Switch is pushed	<ul style="list-style-type: none"> • No AC Power 	<ul style="list-style-type: none"> • Make certain AC power cord is plugged into a live outlet • Check to see whether outlet is switch-controlled
Display lights, but no sound or picture	<ul style="list-style-type: none"> • Intermittent input connections • Mute is on • Volume control is down 	<ul style="list-style-type: none"> • Make certain that all input and speaker connections are secure • Press Mute Button 42 • Turn up volume control
No sound from any speaker; light around power switch is red	<ul style="list-style-type: none"> • Amplifier is in protection mode due to possible short • Amplifier is in protection mode due to internal problems 	<ul style="list-style-type: none"> • Check speaker wire connections for shorts at receiver and speaker ends • Contact your local Harman Kardon service center
No sound from surround or center speakers	<ul style="list-style-type: none"> • Incorrect surround mode • Input is monaural • Incorrect configuration • Stereo or Mono program material 	<ul style="list-style-type: none"> • Select a mode other than Stereo • There is no surround information from mono sources • Check speaker mode configuration • The surround decoder may not create center- or rear-channel information from nonencoded programs
Unit does not respond to remote commands	<ul style="list-style-type: none"> • Weak batteries in remote • Wrong device selected • Remote sensor is obscured 	<ul style="list-style-type: none"> • Change remote batteries • Press the AVR selector • Make certain front panel sensor is visible to remote or connect remote sensor
Intermittent buzzing in tuner	<ul style="list-style-type: none"> • Local interference 	<ul style="list-style-type: none"> • Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances
Letters flash in the channel indicator display and digital audio stops	<ul style="list-style-type: none"> • Digital audio feed paused 	<ul style="list-style-type: none"> • Resume play for DVD • Check that Digital Input is selected

In addition to the items shown above, additional information on troubleshooting possible problems with your AVR 240, or installation-related issues, may be found in the list of "Frequently Asked Questions" which is located in the Product Support section of our Web site at www.harmankardon.com.

Processor Reset

In the rare case in which 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 240's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first place the AVR in Standby Mode, and then press and hold the **Tone Mode Button 5** button for three seconds. The unit will turn on automatically.

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. Before performing a processor reset, we suggest that you record your current system settings on the worksheet found on page 62. 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 center.

AVR 240 TECHNICAL SPECIFICATIONS

Audio Section

Stereo Mode

Continuous Average Power (FTC)

65 Watts per channel, 20Hz–20kHz,
@ <0.07% THD, both channels driven into 8 ohms

Six-Channel Surround Modes

Power per Individual Channel

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

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

Surround (L & R Side, Back) channels:

50 Watts per channel
@ <0.07% THD, 20Hz–20kHz into 8 ohms

Input Sensitivity/Impedance

Linear (High-Level) 200mV/47k ohms

Signal-to-Noise Ratio (IHF-A) 100dB

Surround System Adjacent Channel Separation

Pro Logic 40dB

Dolby Digital 55dB

DTS 55dB

Frequency Response

@ 1W (+0dB, -3dB) 10Hz – 130kHz

High Instantaneous

Current Capability (HCC) ±35 Amps

Transient Intermodulation

Distortion (TIM) Unmeasurable

Slew Rate

40V/μsec

FM Tuner Section

Frequency Range 87.5–108.0MHz

Usable Sensitivity IHF 1.3μV/13.2dBf

Signal-to-Noise Ratio Mono/Stereo 70/68dB

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 520–1720kHz

Signal-to-Noise Ratio 45dB

Usable Sensitivity Loop 500μV

Distortion 1kHz, 50% Mod 0.8%

Selectivity ±10kHz, 30dB

Video Section

Television Format 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 Video) 10Hz–50MHz (-3dB)

General

Power Requirement AC 120V/60Hz

Power Consumption 65W idle, 540W maximum
(6 channels driven)

Dimensions

(Product)

(Shipping)

Width 17.3 inches (440mm)

18.5 inches (470mm)

Height 6.6 inches (168mm)

10.75 inches (273mm)

Depth 15 inches (381mm)

22 inches (559mm)

Weight (Product)

(Shipping)

34.5 lb (15.7kg)

35.4 lb (16.1kg)

Depth measurement includes knobs, buttons and terminal connections.

Height measurement includes feet and chassis.

All features and specifications are subject to change without notice.

Harman Kardon, Harman International, Power for the Digital Revolution and Logic 7 are registered trademarks, and **Bridge** is a trademark, of Harman International Industries, Incorporated.

Dolby, Pro Logic and the double-D symbol are registered trademarks of Dolby Laboratories. Manufactured under license from Dolby Laboratories.

DTS, DTS Surround, DTS-ES, DTS 96/24 and DTS Neo:6 are registered trademarks of DTS, Inc.

VMAx is a registered trademark of Harman International Industries, Incorporated, and is an implementation of Cooper Bauck Transaural Stereo under patent license.

SACD is a trademark of Sony Electronics, Inc.

iPod is a registered trademark, and Shuffle is a trademark, of Apple Computer, Inc.

Supplied Accessories

The following accessory items are supplied with the AVR 240. If any of these items are missing, please contact Harman Kardon customer service at www.harmankardon.com.

- A system remote control
- A microphone
- Extender rod for microphone
- Two covers for front-panel jacks
- An AM loop antenna
- An FM wire antenna
- Three AAA batteries

Please register your product on our Web site at www.harmankardon.com. Note: You'll need the product's serial number.

At the same time you can choose to be notified about our new products and/or special promotions.

- 5-Channel Stereo 35, 38
- 6-Channel/8-Channel Direct Input 11, 14, 32
- 7-Channel Stereo 22, 35, 38
- AV Sync Delay 3, 13, 26, 29, 30, 62
- AC Power Connections 16
- Advanced Features 42, 43
- Advanced Select Menu 20, 41, 42, 43
- Analog Bypass 24, 27, 33, 35, 38
- Antenna Terminals 8, 10, 15
- Audio Equipment Connections 15
- Audio Setup Menu 22
- Auto Mode Tuning 6, 12–13, 39
- Auto Polling 22, 36
- Auto Search Method 44
- Cable Television 10, 15, 45, 57–58
- CD 3, 8, 9, 12, 13, 15, 16, 21, 22, 28, 29, 36, 37, 39, 40, 44, 45, 46, 47, 48, 54, 55, 62
- Channel Adjust Menu 30
- Channel Control Punch-Through 46
- Cleaning and Maintenance 4
- Coaxial Digital Audio Jacks 5, 6, 8, 9, 15–16, 21, 36
- Code Readout 44
- Component Video 3, 8, 9, 16, 20, 21, 32, 60, 62
- Composite Video 8, 9, 10, 32
- Default Surround Mode 21, 43, 62
- Delay Adjust Menu 29
- Delay Settings 6, 21, 22, 26, 28, 29, 30, 62
- Description and Features 3
- Digital Audio Playback 33, 36–39
- Digital Source Selection 21, 36
- Direct Code Entry 44
- DMP 6, 8, 9, 11, 13, 14, 15, 22, 32, 40, 44, 47, 48, 62
- Dolby 3, 6, 7, 9, 11, 13, 15, 19, 21, 22, 23, 24, 27, 28, 29, 31, 33, 34, 35, 36, 37, 38, 39, 40, 43, 48, 60
- Dolby Digital 3, 6, 9, 13, 15, 19, 21, 22, 23, 24, 29, 33, 34, 35, 36, 37, 38, 39, 40, 43, 60
- Dolby Headphone 3, 13, 33, 35
- Dolby Pro Logic 13, 21, 22, 23, 24, 28, 29, 31, 33, 34, 36, 38, 39
- Dolby Virtual Speaker 3, 7, 13, 23, 27, 35, 38
- DSP Surround Modes 24, 34–35
- DTS 3, 6, 9, 11, 13, 19, 21, 22, 23, 24, 29, 33, 34, 35, 36, 37, 38, 39, 40, 43, 48, 60
- DTS Neo:6 6, 13, 22, 24, 33, 34, 37, 38, 48, 60
- DTS-ES 13, 19, 23, 24, 33, 34, 36, 38, 60
- DVD 3, 6, 8, 9, 10, 12, 13, 14, 15, 16, 21, 22, 28, 30, 32, 33, 34, 36, 37, 39, 43, 44, 45, 46, 47, 48, 55, 59, 62
- DVD-Audio 9, 14, 15, 16, 21, 32, 33
- EzSet+ 3, 12, 13, 19, 20, 21, 24–26, 27, 28, 29, 30
- Front-Panel Controls 5–7, 32, 36, 40
- Front-Panel Jacks 5–6, 32, 60
- Front-Panel-Display Fade 42
- Full OSD 20, 42
- Full-OSD Time-Out 42, 62
- Hall 3, 12, 24, 30, 33, 35, 38, 39, 49
- Headphones 3, 5, 13, 33, 35
- Input Setup Menu 21, 22
- Input Titling 3, 6, 21
- Input-Independent Speaker Setup 27–28
- Installation 3, 4, 15, 16, 17, 19, 24, 59
- Installation Location 4
- iPod® 3, 13, 14, 15, 40
- IR Receiver (Remote Sensor) 5, 7, 16
- Logic 7 3, 6, 11, 13, 19, 21, 22, 23, 24, 27, 28, 29, 31, 33, 34, 36, 38, 39, 43, 48, 60
- Macros 13, 44
- Manual Mode Tuning 6, 12–13, 39
- Manual Setup Menu 26, 40
- Master Menu 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 40, 42, 43
- Memory Backup 41
- Mute 11, 14, 32, 33, 44, 45, 46, 47, 59
- Night Mode 11, 12, 23, 31, 32, 39, 47, 62
- On-Screen Display 5, 6, 13, 20, 21, 22, 23, 29, 30, 31, 32, 33, 36
- Operation 3, 4, 5, 6, 7, 13, 22, 23, 26, 27, 30, 31, 32–41, 42, 43, 59
- Optical Digital Audio Jacks 5, 6, 8, 9, 15–16, 21, 36
- Output Level Adjustments 30–31
- Output Level Trim Adjustment 6, 40
- PCM 9, 15, 34, 36, 37, 38, 40, 43
- Polarity 9, 15, 20
- Power Switches 5, 12, 32
- Preset Stations 6, 39
- Processor Reset 59
- Programmed Device Functions 45
- Programming Product Codes 44
- Punch-Through Programming 46
- Quadruple Crossover 3, 28
- Rear-Panel Connections 8, 9, 10
- Recalling Preset Stations 39
- Recording 3, 10, 32, 36, 39
- Remote Control 3, 4, 5, 7, 11, 12, 13, 14, 15, 16, 17, 20, 22, 30, 31, 32, 33, 40, 44–58, 60
- Remote Control Batteries 20
- Remote Control Function List 47–48
- Remote Control Functions 11, 12, 13, 14, 45–48
- Remote Control Setup Code Tables 49–58
- Resetting the Remote 46
- S-Video 3, 6, 8, 9, 10, 15, 16, 20, 32, 39, 60
- SACD 15, 16, 32, 33, 60
- Safety Information 4
- Satellite Television 56
- Semi-OSD 20, 22, 31, 32, 33, 40, 42, 62
- Setting Preset Stations 39
- Settings Worksheet 62
- Sleep Mode 12, 32
- Source Selection 21, 32
- Speaker Crossover 25, 26, 28
- Speaker Placement 18–20, 29, 31
- Speaker Selection 18
- Speaker Setup 6, 24, 26, 27
- Speaker Size Menu 26, 27
- Speaker Terminals 9, 15
- Speaker Wire 15, 26, 59
- Speaker/Channel Input Indicators 5, 6, 31, 37
- Subwoofer 6, 8, 9, 15, 20, 21, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 37, 40, 62
- Surround Mode Chart 34–35
- Surround Mode Selection 6, 33
- Surround Off 12, 13, 22, 24, 27, 29, 31, 33, 35, 38
- Surround Select Menu 34
- Surround Setup 22
- System Configuration 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 41
- System Setup 20
- Tape 4, 8, 13, 15, 16, 21, 22, 39, 44, 46, 47, 48, 57, 62
- Technical Specifications 60
- The Bridge 3, 6, 13, 14, 22, 40, 42, 47
- Theater 3, 12, 19, 21, 24, 29, 30, 31, 33, 35, 38, 39, 44, 46
- Tone Controls 5, 22, 24, 33, 38
- Trademark Acknowledgements 60
- Transport Controls 9, 11, 13, 14, 44, 46
- Transport-Control Punch-Through 46
- Troubleshooting Guide 59
- Tuner Mode 5, 6, 11, 12, 13, 39, 40, 47
- Tuner Operation 39
- Turn-On Volume Level (Volume Default) 42
- TV 3, 4, 9, 11, 12, 13, 14, 15, 16, 20, 21, 28, 33, 44, 45, 46, 47, 48, 49, 50, 51
- Typographical Conventions 2
- Unpacking 4, 15
- Upsampling 23, 24
- VCR 3, 10, 13, 15, 21, 28, 44, 45, 46, 47, 48, 52, 53
- Video Connections 9, 10, 16
- Video Equipment Connections 15–16
- Video Monitor 8, 9, 14, 16, 20, 32
- VMAx 12, 23, 24, 27, 31, 33, 35, 38, 60
- Volume Control 5, 6, 13, 20, 24, 27, 32, 33, 35, 40, 45, 46, 59
- Volume Punch-Through 46

APPENDIX - SETTINGS WORKSHEET

Table 1: Input Settings

FEATURE	DVD	VIDEO 1	VIDEO 2	VIDEO 3	Bridge DMP	CD	TAPE	TUNER	6/8 CH. DIRECT
Input Title									
Component Video Input	Component Video 1 (Y/N)	Component Video 2 (Y/N)	Component Video 2 (Y/N)	Component Video 2 (Y/N)		Component Video 1 (Y/N)	Component Video 1 (Y/N)	Component Video 1 (Y/N)	Component Video 2 (Y/N)
Digital Audio Input									
Auto Poll (On/Off)									
Surround Mode									
Night Mode									
Front L/R Speaker Size†									
Center Speaker Size†									
Surround L/R Speaker Size†									
Surround Back L/R Speaker Size†									
Subwoofer									
Front L/R Crossover									
Center Crossover									
Surround L/R Crossover									
Surround Back L/R Crossover									
LFE Setting									

Table 2: Audio Setup (Tone Control Settings)

CONTROL	SETTING
Tone (In/Out)	
Bass	
Treble	

Table 3: Delay Settings

CHANNEL	SETTING
Left Front	
Right Front	
Center	
Surround Left	
Surround Right	
Surround Back Left	
Surround Back Right	
Subwoofer	
Unit (Feet/Meters)	
A/V Sync Delay	

Table 4: Output Level

CHANNEL	SETTING
Left Front	
Right Front	
Center	
Surround Left	
Surround Right	
Surround Back Left	
Surround Back Right	
Subwoofer	

Table 5: Advanced Settings

FEATURE	SETTING
VFD Fade Time-Out	
Volume Default	
Default Volume Setting	
Semi-OSD Time-Out	
Full-OSD Time-Out	
Default Surround Mode (On/Off)	
OSD Background (Blue/Black)	

†If the **GLOBAL** setting was selected, you need only indicate speaker sizes for one input.



harman/kardon®

H A Harman International Company
250 Crossways Park Drive, Woodbury, New York 11797
www.harmankardon.com
© 2006 Harman International Industries, Incorporated.
All rights reserved.
Part No. CQX1A1026Z 4/06