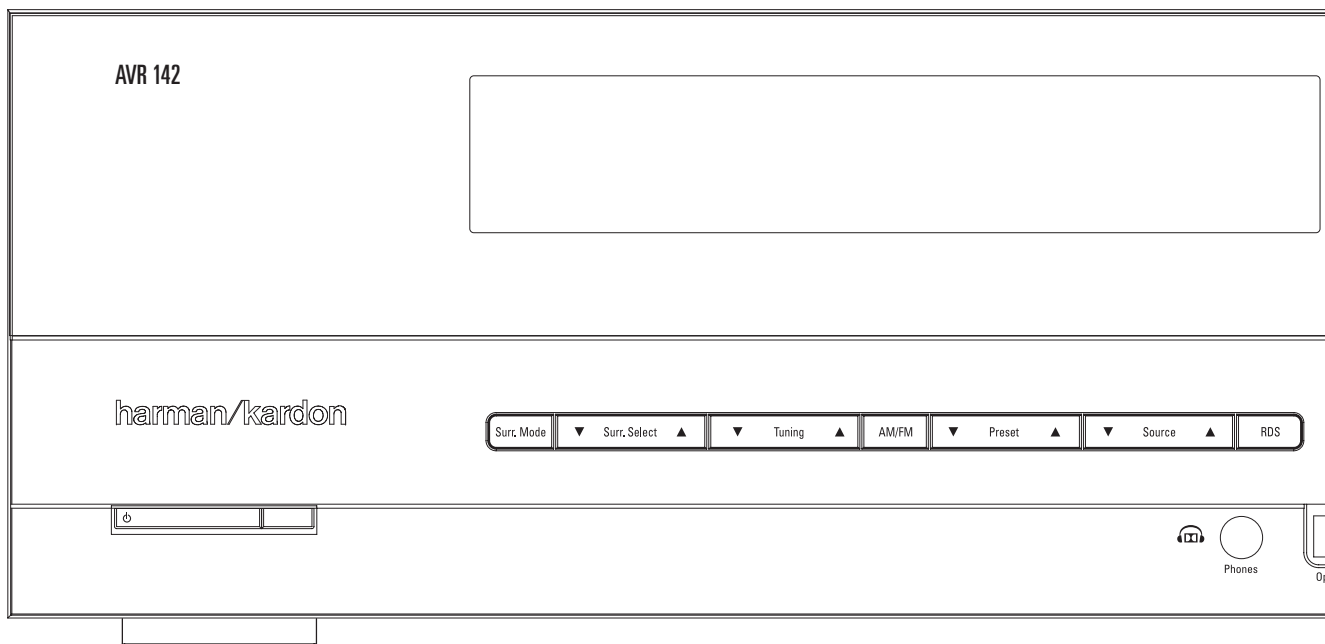


# AVR 142

Audio/Video Receiver

OWNER'S MANUAL



## Table of Contents

3	Safety Information
3	Unpacking
4	Remote Control Functions
8	Front Panel Controls
9	Rear Panel Connections
10	Installation and Connections
10	Audio Equipment Connections
10	Video Equipment Connections
11	HDMI Connections
12	System Configuration
12	First Turn On
12	Settings to be Made With Each Input Used
12	Input Setup
12	Speaker Setup
13	Surround Setup
13	Configuring the Surround Off (Stereo) Modes
13	Stereo-Direct (Bypass) Mode
14	Stereo Digital Mode
14	Delay Settings
14	Night Mode Settings
14	Output Level Adjustment
16	Operation
16	Basic Operation
16	Source Selection
16	Controls and Use of Headphones
16	Surround Mode Selection
17	Digital Audio Playback
18	Selecting a Digital Source
18	Digital Status
18	Surround Mode Types
19	Night Mode
19	Tape Recording
19	Output Level Trim Adjustment
19	6-Channel Direct Input
19	Display Brightness
20	Memory Backup
20	Tuner Operation
20	RDS Operation
22	Troubleshooting Guide
22	Processor Reset
23	Technical Specifications AVR

### DECLARATION OF CONFORMITY



We, Harman Consumer Group International  
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France

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

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

Jurjen Amsterdam  
Harman Consumer Group Inc.  
04/09

### Typographical Conventions

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

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

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


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

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


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


# Safety Information

## Important Safety Instructions

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

15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily operable.
18. Do not expose batteries to excessive heat such as sunshine, fire or the like.

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

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

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

## READ THIS BEFORE OPERATING YOUR UNIT.

Do not install this equipment in a confined space such as a case or similar – Install it away from direct sunlight, heat sources, vibration, dust, moisture, and/or cold.

Avoid installing this unit where foreign objects may fall onto this unit and/or this unit may be exposed to liquid dripping or splashing. On the top of this unit, do not place:

- Burning objects (i.e. candles), as they may cause fire, damage to this unit, and/or personal injury.
- Containers with liquid in them, as they may fall and liquid may cause electrical shock to the user and/or damage to this unit.

Do not cover this unit with a newspaper, tablecloth, curtain, etc. in order not to obstruct heat radiation. If the temperature inside this unit rises, it may cause fire, damage to this unit, and/or personal injury.

Install this unit near the AC outlet and where the AC power plug can be reached easily.

This unit is not disconnected from the AC power source as long as the Main Power Switch is ON. This state is called the standby mode. In this state, this unit is designed to consume a very small quantity of power.

## 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 station.

## Installation Location

- To assure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product.
- Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. Under some circumstances a fan may be required.
- Do not place the unit directly on a carpeted surface.
- Avoid installation in extremely hot or cold locations, or an area that is exposed to direct sunlight or heating equipment.

## Cleaning


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

## Moving the Unit


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

## Unpacking


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




**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



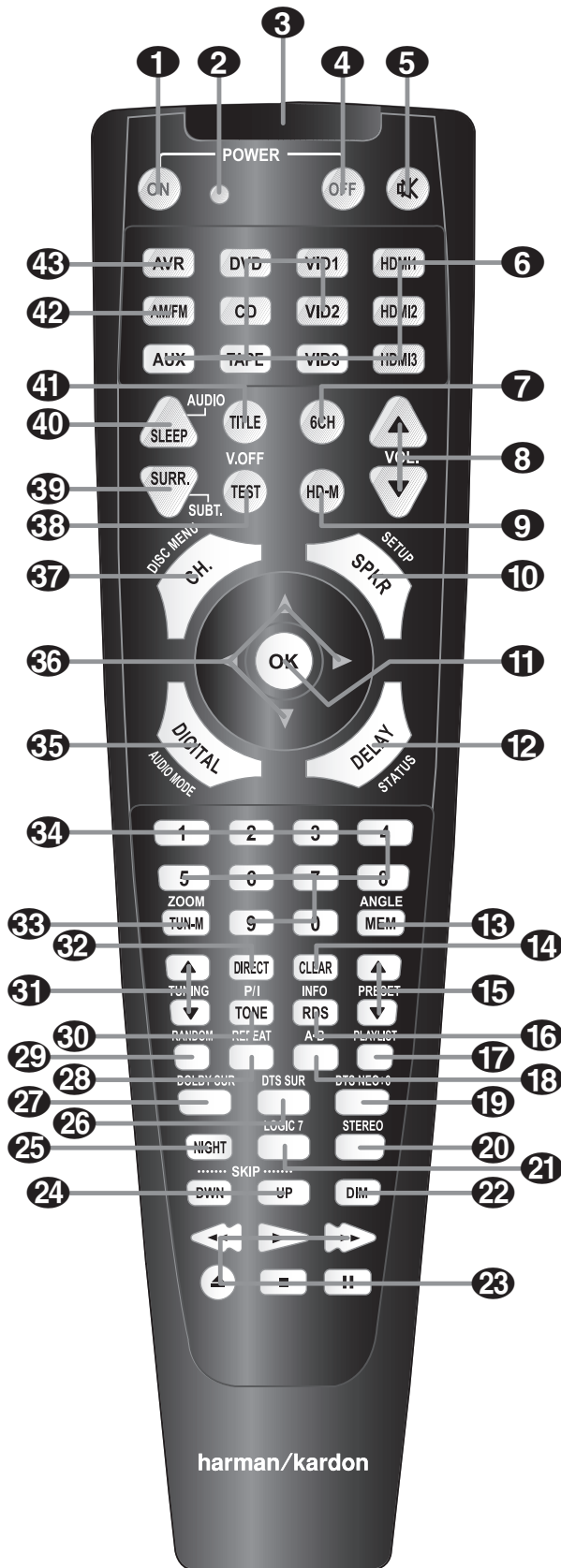
**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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

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

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

# Remote Control Functions



- 1 Power On Button
- 2 Not active
- 3 IR Transmitter Window
- 4 Power Off Button
- 5 Mute
- 6 Input Selectors
- 7 6-Channel Direct Input
- 8 Volume Up/Down
- 9 HD Mode Selector
- 10 Speaker Select/Setup
- 11 OK Button
- 12 Delay/Status Button
- 13 Memory/Angle Button
- 14 Clear Button
- 15 Preset Up/Down
- 16 RDS Select/Info Button
- 17 Playlist
- 18 A-B
- 19 DTS Neo:6 Mode Selector
- 20 Stereo Mode Selector
- 21 Logic 7 Selector
- 22 Dim Button
- 23 Transport Buttons
- 24 Skip Up/Down Buttons (DWN)/(UP)
- 25 Night Mode
- 26 DTS Digital Mode Selector
- 27 Dolby Mode Selector
- 28 Repeat
- 29 Random
- 30 Tone Mode/Progressive Scan/Interlaced Button
- 31 Tuning Up/Down
- 32 Direct Button
- 33 Tuner Mode/Zoom
- 34 Numeric Keys
- 35 Digital Select/Audio Mode
- 36 Navigation Buttons
- 37 Channel Select /Disc Menu Button
- 38 V.OFF/Test Button
- 39 Surround Mode Selector/Program Down/ Subtitle Button
- 40 Sleep/Program Up/Audio Select Button
- 41 Title
- 42 AM/FM Tuner Select
- 43 AVR Selector

## Remote Control Functions, common for AVR 142 and a HK DVD Player

**IMPORTANT NOTE:** The combined AVR and DVD remote has some buttons that perform different functions. If you press the **AVR Button 43**, one set of functions is active, identical to the functions for buttons CD, Tape, Video 1/2/3. If you press the **DVD/HDMI1 Button 6**, some of the buttons change their function as indicated above the button itself, and explained below. Refer to the function table for an overview of functions in both modes. NOTE that pressing the **HDMI1** and **DVD** Buttons **6** activate the alternative commands as seen in the Function List on page 7. The DVD functions work with harman/kardon DVD players only.

**1 Power On Button:** Press this button to turn on the power to the AVR or the DVD selected by pressing either the **AVR** or the **DVD/HDMI1 Button 43** or **6**.

**2 This indicator is not active.**

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

**4 Power Off Button:** Press this button to place the AVR or a selected device unit in the Standby mode. If held for more than 3 seconds, both the AVR and the DVD switch to Standby.

**5 Mute:** Press this button to momentarily silence the AVR or TV set being controlled, depending on which device has been selected.

**6 Input Selectors:** Pressing one of these buttons will perform three actions at the same time. First, if the AVR 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. Finally, the DVD/HDMI1 Button will switch the double-function remote buttons to their DVD functions. After pressing the DVD/HDMI1 Button, you must press the **AVR Selector button 43** again to operate all the AVR's functions with the remote. Note that pressing the DVD Button switches on BOTH the AVR and the DVD, whereas pressing the AVR Button just switches on the AVR.

**7 6-Channel Direct Input:** Press this button to select the component connected to the **6-Channel Direct Input 24** as the audio. Note that when you wish to use the Six Channel Direct Input in conjunction with a video source, you must first select the video source by pressing one of the **Input Selectors 6**. Then press this button to choose the **6-Channel Direct Input 24** as the audio source.

**8 Volume Up/Down:** Press these buttons to raise or lower the system volume.

**9 HD Mode Selector (DVD):** This function is active with harman/kardon DVD players only.

**10 Speaker Select/Setup:** Press this button to begin the process of configuring the AVR's Bass Management System for use with the type of speakers used in your system. Once the button has been pressed, use the **▲ ▼** buttons **36** to select the channel you wish to set up. Press the **OK** button **11** and then select the speaker type (see page 12 for more information.)

For DVD: Press this button to use the DVD's on-screen menu system to adjust the player's configuration settings. Note that the **Info Button 7** must be pressed to access the DVD's Information menu to obtain detailed disc information, and to configure the playback mode of the disc.

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

**12 Delay/Status Button:** Press this button to begin the process for setting the delay times used by the AVR when processing surround sound. After pressing this button, the delay times are entered by pressing the **OK** button **11** and then using the **▲ ▼** buttons **36** to change the setting. Press the **Set** button again to complete the process (See page 14 for more information).

For DVD: Press while a disc is playing to view banner display. Use the **ARROW** buttons to move through the different features in the Banner Display. When a symbol is highlighted, press **OK** on the remote to select it.

**13 Memory/Angle Button:** Press this button to enter a radio station into the AVR's preset memory. Two underline indicators will flash at the right side of the **Main Information Display 16**, you then have five seconds to enter a preset memory location using the **Numeric Keys 34**. (See page 20 for more information.)

For DVD: Press to access various camera angles on a DVD (If the DVD contains multiple camera angles) or to rotate JPEG images.

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

**15 Preset Up/Down:** When the tuner is in use, press these buttons to scroll through the stations programmed into the AVR's memory. When CD or DVD is selected using the **Input Selector button 6**, these buttons may function as Slow Fwd/Rev (DVD) or "+10" (CD).

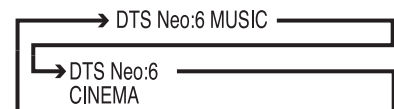
**16 RDS Select/Info (DVD) Button:** Press this button to display the various messages that are part of the RDS data system of the AVR's tuner. (See page 20 for more information on RDS).

For DVD: Press for detailed informations on the disc playing (Video/Audio Bit rate, Movie aspect ratio and others), and for current player settings made. Note that the unit doesn't react on any transport button as long as the info menu is displayed. Press again to remove information from screen.

**17 Playlist (DVD):** Press this button to change the playback order of the disc.

**18 A-B (DVD):** Press to select section A-B and to play repeatedly.

**19 DTS Neo:6 Mode Selector:** Pressing this selector button cycles the AVR through the various DTS Neo:6 modes, which extract a five-channel surround field from two-channel program material (from PCM source or analog input signal). The first press selects the last DTS Neo:6 surround mode that was in use, and each subsequent press selects the next mode in the following order:



## Remote Control Functions, common for AVR 142 and a HK DVD Player

**20 Stereo Mode Selector:** Press this button to select a stereo playback mode. When the button is pressed so that **DSP SURR OFF** appears in the **Main Information Display 16**, 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 as opposed to other modes where digital processing is used. When the button is pressed so that **SURROUND OFF** appears in the **Main Information Display 16**, you may enjoy a two-channel presentation of the sound along with the benefits of bass management. When the button is pressed so that **5 CH STEREO** appears, the stereo signal is routed to all five speakers, if installed. (See page 13 for more information on stereo playback modes).

**21 Logic 7 Selector:** Press this button to select one of the available Logic 7 surround modes. (See page 16 for the available Logic 7 options).

**22 Dim Button:** Press this button to activate the Dimmer function, which reduces the brightness of the front panel display, or turn it off entirely. The first press of the button shows the default state, which is full brightness by indicating **VFD FULL** in the **Main Information Display 16**. Press the button again within five seconds to reduce the brightness by 50%, as indicated by **VFD HALF**. Press the button again within five seconds and the main display will go completely dark. Note that this setting is temporary; the display will always return to full brightness when the AVR is turned on. In addition, both the **Power Indicator 3** and the blue accent lighting inside the volume control will always remain at full brightness regardless of the setting. This is to remind you that the AVR is still turned on.

**23 Transport Buttons:** These buttons operate the DVD player.

**24 Skip Up/Down Buttons (DVD):**

**(DWN):** Press to go to beginning of current track. Press again quickly to go to beginning of previous track. After pressing the **PAUSE** button, each press of this button will move the image in reverse frame by frame.

**(UP):** Press to go to beginning of next track. After pressing the **PAUSE** button, each press of this button will move the image forwards frame by frame.

**25 Night Mode:** Press this button to activate the Night mode. This mode is available only with Dolby Digital encoded digital sources, and it preserves dialog (center channel) intelligibility at low volume levels (See page 14 for more information).

**26 DTS Digital Mode Selector:** When a DTS source is in use the AVR will select the appropriate mode automatically and no other mode will be available. Pressing this button will display the mode currently selected by the AVR's decoder, depending on the surround material played and the speaker setting.

**27 Dolby Mode Selector:** This button is used to select one of the available Dolby Surround processing modes. Each press of this button will select one of the Dolby Pro Logic II modes, Dolby 3 Stereo or Dolby Digital. Note that the Dolby Digital mode is only available with a digital input selected and the other modes only as long as a Dolby Digital source is not playing.

**28 Repeat (DVD):** Each press of this button changes the playback mode to repeat a chapter or track or the entire disc. A repeat icon will appear in the upper right corner of the screen indicating the current repeat mode. If the Player Information Screen is active, the changes will be displayed on screen.

**29 Random (DVD):** Press for RANDOM playback in random order.

**30 Tone Mode/Progressive Scan/Interlaced Button:** Pressing this button enables or disables the Bass and Treble tone controls. When the button is pressed so that the words **TONE IN** appear in the **Main Information Display 16**, the settings of the **Bass** and **Treble** controls will affect the output signals. When the button is pressed so that the words **TONE OUT** appear in the **Main Information Display 16**, the output signal will be "flat," without any bass or treble alteration.

For DVD: Press this button to change the resolution of the Component Video Output between standard definition and progressive definition (PAL interlaced and PAL progressive; NTSC interlaced and NTSC progressive). The new setting will become effective after quitting the Setup menu.

**31 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 **33** has been pressed or the **Band** button **9** on the front panel was held pressed so that **AUTO** appears in the **Main Information Display 16**, pressing either of the buttons will cause the tuner to seek the next station with acceptable signal strength for quality reception. When the **MANUAL** appears in the **Main Information Display 16**, pressing these buttons will tune stations in single-step increments. (See page 20 for more information).

**32 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 34** to select a station (See page 20 for more information on the tuner).

**33 Tuner Mode/Zoom:** Press this button when the tuner is in use to select between automatic tuning and manual tuning. When the button is pressed so **MANUAL** appears in the **Main Information Display 16**, pressing the **Tuning** buttons **31 8** will move the frequency up or down in single-step increments. When the FM band is in use and **AUTO** appears in the **Main Information Display 16**, pressing this button will change to monaural reception making even weak stations audible. (See page 20 for more information.)

When a DVD or VCD is playing, press this button to zoom the picture so that it is enlarged. There are 4 steps to the zoom function, each progressively larger. Press through each of the zoom stages to return to a normal picture.

**34 Numeric Keys:** These buttons serve as a ten-button numeric keypad to enter tuner preset positions. For DVD play you may enter track numbers directly, followed by OK to go to the track.

**35 Digital Select/Audio Mode:** Press this button to assign one of the digital inputs **5 17 10 22** to a source. (See page 10 for more information on using digital inputs.) **Audio Mode:** When operating the DVD, press this button to switch between Audio Modes.

**36 Navigation Buttons:** These are multi-purpose buttons. They will be used most frequently to select a surround mode. These buttons are also used to increase or decrease output levels when configuring the unit, to select speaker configuration or to select the digital inputs.

**37 Channel Select /Disc Menu Button:** This button is used to start the process of setting the AVR's output levels with an external source. Once this button is pressed, use the **▲ ▼** buttons **36** to select the channel being adjusted, then press the **OK** button **11**, followed by the **▲ ▼** buttons again, to change the level setting. (See page 19 for more information.)

DVD Disc Menu: Displays the actual DVD Disc Menu on the TV screen in play mode. When playing discs with JPEG images, pressing this button will access the thumbnails.

**38 V.OFF/Test Button:** Press to turn off video output of a DVD-player for improved performance from audio-only discs. Press again to restore video output.

Tone: Press this button to begin the sequence used to calibrate the AVR's output levels. (See page 14 for more information on calibrating the AVR).

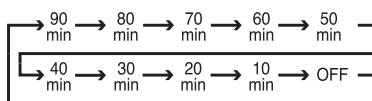
# Remote Control Functions, common for AVR 142 and a HK DVD Player

**39 Surround Mode Selector/Program Down/Subtitle Button:** Press this button to begin the process of changing the surround mode. After the button has been pressed, use the ▲ ▼ buttons **36** to select the desired surround mode. (See page 16 for more information).

When a DVD is playing, press to select a subtitle language or to turn subtitles off.

**Note:** Due to the variations in how DVD discs are authored, the subtitle languages selected with the Subtitle Button may not accurately reflect the actual languages available on the disc. It is recommended that subtitles be selected using the disc's menu.

**40 Sleep/Program Up/Audio Select Button:** Press this button to place the unit in the Sleep mode. After the time shown in the display, the AVR will automatically go into the Standby mode. Each press of the button changes the time until turn-off in the following order:



Hold the button pressed for two seconds to turn off the Sleep mode setting.

DVD: Press to access various audio languages on a DVD (If the DVD contains multiple audio streams).

**41 Title:** When a disc is playing, press to make the DVD-player go back to the first section of the disc. If you are playing a DVD-Audio disc that contains other formats the DVD is capable of playing, such as linear PCM or Dolby Digital 5.1, pressing this button may enable you to switch playback from one audio format to another.

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

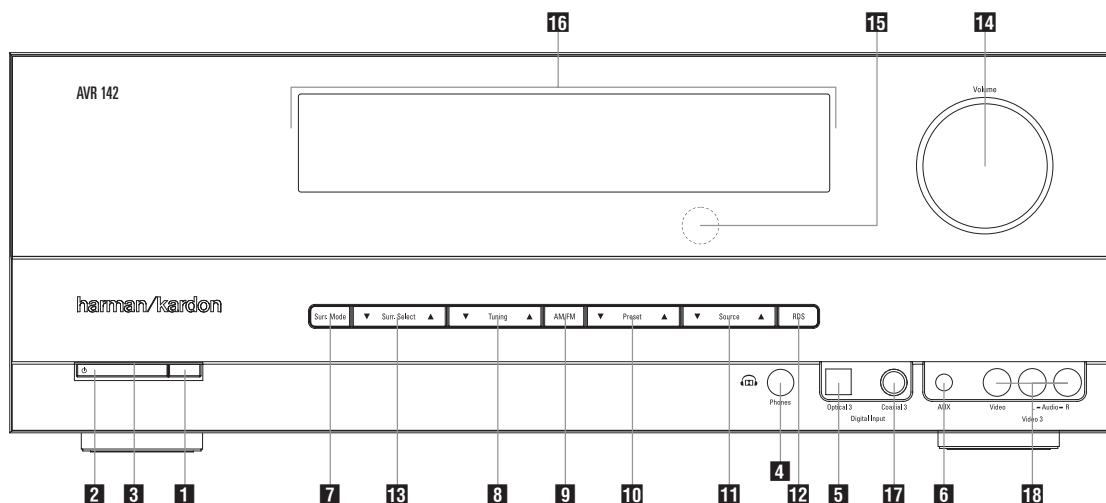
**43 AVR Selector:** Pressing this button will switch the remote so that it will operate the AVR's functions. If the AVR is in the Standby mode, it will also turn the AVR on.

## Function List

Button Name	HK AVR Remote Command AVR/TAPE/CD/AUX/VID1/VID2/VID3/HDMI2/HDMI3	HK DVD Remote Command DVD/HDMI1
<b>Power ON</b>	Power On	Power On
<b>Power OFF</b>	Power Off (press and release) Power Off (press and hold)	Power Off (press and release) Power Off (press and hold)
<b>Mute</b>	Mute	Mute(AVR)
<b>AVR</b>	AVR Power On	AVR(AVR)
<b>DVD</b>	DVD	DVD(AVR)
<b>VID1</b>	VID 1	VID 1(AVR)
<b>HDMI1</b>	HDMI 1	HDMI 1(AVR)
<b>AM/FM</b>	AM/FM	AM/FM(AVR)
<b>CD</b>	CD	CD(AVR)
<b>VID2</b>	VID 2	VID 2(AVR)
<b>HDMI2</b>	HDMI 2	HDMI 2(AVR)
<b>AUX</b>	AUX	AUX(AVR)
<b>TAPE</b>	TAPE	TAPE(AVR)
<b>VID3</b>	VID 3	VID 3(AVR)
<b>HDMI3</b>	HDMI 3	HDMI 3(AVR)
<b>SLEEP / AUDIO</b>	Sleep	Audio
<b>TITLE</b>		Title
<b>6CH</b>	6CH	6CH(AVR)
<b>VOL Up</b>	Vol Up	Vol Up(AVR)
<b>SURR. / SUBT.</b>	Surround Mode	Subtitle
<b>TEST / V.OFF</b>	Test Tone	Video Off
<b>HD-M</b>		HD Mode
<b>VOL Down</b>	Vol Down	Vol Down(AVR)
<b>CH. / DISC MENU</b>	Channel Select	Disc Menu
<b>SPKR / SETUP</b>	Speaker Select	Setup
<b>Level+ /Up</b>	Level+ /Up	Up
<b>Left ◀</b>	Left	Left
<b>OK</b>	SET	Enter
<b>Right ▶</b>	Right	Right
<b>Level-/Down</b>	Level-/Down	Down
<b>DIGITAL / AUDIO MODE</b>	Digital Select	Audio Mode
<b>DELAY / STATUS</b>	Delay	Status
<b>1</b>	1	1
<b>2</b>	2	2
<b>3</b>	3	3
<b>4</b>	4	4
<b>5</b>	5	5
<b>6</b>	6	6
<b>7</b>	7	7
<b>8</b>	8	8
<b>TUN-M / ZOOM</b>	Tuner Mode	Zoom
<b>9</b>	9	9
<b>0</b>	0	0
<b>MEM / ANGLE</b>	Memory	Angle
<b>TUNING Up</b>	Tuning Up	
<b>DIRECT</b>	Direct Tuning	
<b>CLEAR</b>	Clear	Clear
<b>PRESET Up</b>	Presets Up	Slow Up
<b>TUNING Down</b>	Tuning Down	
<b>TONE / P/I</b>	Tone Mode	P/I
<b>RDS / INFO</b>	RDS	Info
<b>PRESET Down</b>	Presets Down	Slow Down
<b>RANDOM</b>		Random Play
<b>REPEAT</b>		Repeat Play
<b>A-B</b>		A-B Repeat Play
<b>PLAYLIST</b>		Playlist
<b>DOLBY SUR</b>	Dolby Surround	Dolby Surround(AVR)
<b>DTS SUR</b>	DTS Surround	DTS Surround(AVR)
<b>DTS NEO:6</b>	DTS NEO:6	DTS NEO:6(AVR)
<b>NIGHT</b>	Night Mode	Night(AVR)
<b>LOGIC 7</b>	Logic7	Logic7(AVR)
<b>STEREO</b>	Stereo	Stereo(AVR)
<b>SKIP DOWN</b>	Skip Down(DVD)	Skip Down
<b>SKIP UP</b>	Skip Up(DVD)	Skip Up
<b>DIM</b>	Dimmer	Dimmer
<b>Rew(◀◀)</b>	Rew(DVD)	Rew
<b>Play(▶▶)</b>	Play(DVD)	Play
<b>FF(▶▶)</b>	FF(DVD)	FF
<b>Open/Close</b>	Open/Close(DVD)	Open/Close
<b>Stop</b>	Stop(DVD)	Stop
<b>Pause</b>	Pause(DVD)	Pause

# AVR Audio/Video Receiver

## Front Panel Controls



**1 Main Power Switch:** Press this button to apply power to the AVR. When the switch is pressed in, the unit is placed in a Standby mode, as indicated by the orange LED **3**. This button **MUST** be pressed in to operate the unit. To turn the unit off completely and prevent the use of the remote control, this switch should be pressed until it pops out from the front panel so that the word "OFF" may be read at the top of the switch.

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

**2 System Power Control:** When the **Main Power Switch 1** is "ON," press this button to turn on the AVR; press it again to turn the unit off (to Standby). Note that the **Power Indicator 3** will turn blue when the unit is on.

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

**4 Headphone Jack:** This jack may be used to listen to the AVR's output through a pair of headphones. Be certain that the headphones have a standard 6.3 mm stereo phone plug. Note that the speakers will automatically be turned off when the headphones are connected.

**5 Digital Optical 3 Input:** Connect the optical digital audio output of an audio or video product to this jack.

**6 Aux input stereo minijack:** Connect this minijack to any audio source, typically MP3 players or portable CD players. An analog headphone output jack or line level out jack may be used.

**7 Surround Mode Group Selector:** Press this button to select the top-level group of surround modes. Each press of the button will select a major mode grouping in the following order:

Dolby Modes > DTS Digital Modes > DSP Modes > Stereo Modes > Logic 7 Modes

Once the button is pressed so that the name of the desired surround mode group appears in the **Lower Display Line 16**, press the **Surround Mode Selector 13** to cycle through the individual modes available. For example, press this button to select Dolby modes, and then press the **Surround Mode Selector 13** to choose from the various mode options.

**8 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 a station with a strong signal is reached, **MANUAL TUNED** or **AUTO TUNED** will appear in the **Main Information Display 16** (see page 20 for more information on tuning stations).

**9 Tuner Band Selector:** Pressing this button will automatically switch the AVR to the Tuner mode. Pressing it again will switch between the AM and FM frequency bands, holding it pressed for some seconds will switch between stereo and mono receiving and between automatic and manual tuning mode (See page 20 for more information on the tuner).

**10 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 20 for more information on tuner programming.)

**11 Input Source Selector:** Press this button to change the input by scrolling through the list of input sources.

**12 RDS Select Button:** Press this button to display the various messages that are part of the RDS data system of the AVR's tuner. (See page 20 for more information on RDS).

**13 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 mode grouping

such as Dolby or Logic 7, and then press this button to see the mode choices available. For more information on mode selection, see page 13.

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

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

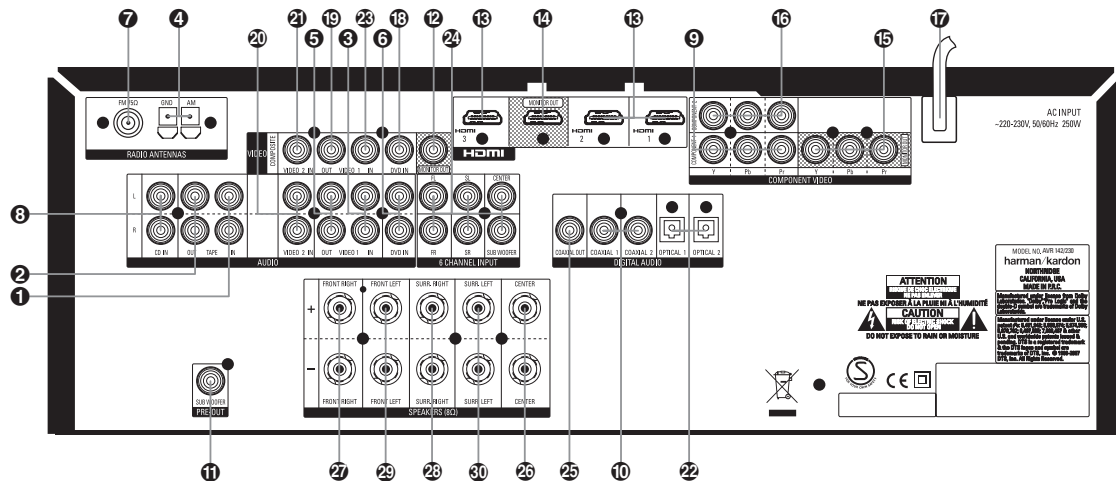
**16 Main Information Display:** This display delivers messages and status indications to help you operate the receiver.

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

**18 Video 3 Input Jacks:** These audio/video jacks may be used for temporary connection to video games or portable audio/video products such as camcorders and portable audio players.



## Rear Panel Connections



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

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

**3 Video 1 Audio Inputs:** Connect these jacks to the **PLAY/OUT** audio jacks on a TV or other video source.

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

**5 Video 1 Audio Outputs:** Connect these jacks to the **RECORD/INPUT** audio jacks on a VCR or any other Audio recorder.

**6 DVD Audio Inputs:** Connect these jacks to the analog audio jacks on a DVD or other video source.

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

**8 CD Inputs:** Connect these jacks to the analog output of a compact disc player or CD changer.

**9 Video 1 Component Video Inputs:** Connect the Y/Pr/Pb component video outputs of an HDTV Set-top convertor, satellite receiver, or other video source device with component video outputs to these jacks.

**10 Coaxial Digital Inputs:** Connect the coax digital output from a DVD player, HDTV receiver, LD player, MD player or CD player to these jacks. The signal may be either 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.

**11 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.

**12 Video Monitor Output:** Connect these jacks to the composite input of a TV monitor or video projector to view the output of any video source selected by the receiver's video switcher.

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

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

**15 Monitor Component Video Outputs:** Connect these outputs to the component video inputs of a video projector or monitor. When a source connected to one of the two **Component Video Inputs** **9** **16** is selected the signal will be sent to these jacks.

**16 Video 2 Component Video Inputs:** Connect the Y/Pr/Pb component video outputs of a DVD player to these jacks.

**Note:** All component inputs/outputs can be used for RGB signals too, in the same way as described for the Y/Pr/Pb signals, then connected to the jacks with the corresponding color.

RGB connection is not possible if the source outputs a separate sync signal (see page 11).

**17 AC Power Cord:** Connect the AC plug to an unswitched AC wall output.

**18 DVD Video Inputs:** Connect these jacks to the composite output jacks on a DVD player or other video source.

**19 Video 1 Video Outputs:** Connect these jacks to the **RECORD/INPUT** composite jack on a VCR.

**20 Video 2 Audio Inputs:** Connect these jacks to the **PLAY/OUT** audio jacks on a VCR or other video source.

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

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

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

**24 6-Channel Direct Inputs:** These jacks are used for connection to source devices such as DVD-Audio or SACD players with discrete analog outputs.

**25 Digital Audio Output:** Connect this jack to the matching digital input connector on a digital recorder.

**26/27/29 Front/Center Speaker Outputs:** Connect these outputs to the matching + or – terminals on your front/center speakers. When making speaker connections, always make certain to maintain correct polarity by connecting the red (+) terminals on the AVR to the red (+) terminals on the speaker and the black (–) terminals on the AVR to the black (–) terminals on the speakers. (See page 12 for more information on speaker polarity.)

**28/30 Surround Speaker Outputs:** Connect these outputs to the matching + or – terminals on your left and right surround speakers. When making speaker connections always make certain to maintain correct polarity by connecting the red (+) terminals on the AVR to the red (+) terminals on the speakers and the black (–) terminals on the AVR to the black (–) terminals on the speakers. See page 12 for more information on speaker polarity.

## Installation and Connections

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

### Audio Equipment Connections

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

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

**Important Note:** In order to clearly identify all connectors and simplify installation, as per the new EIA/CEA-863 standard, all connections are colour coded as follows:

For Speakers and Audio In/Outputs: White (Left, speakers front) and Red (Right, speakers front).

For Speakers: Green (Center), Blue (Left Surround) and Grey (Right Surround).

For Audio Output: Purple (Subwoofer).

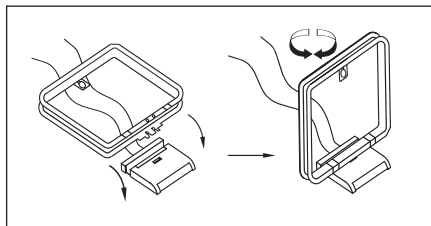
For Composite Video In/Outputs: Yellow.

For Digital Audio In/Outputs: Orange.

1. Connect the analog output of a CD player to the **CD inputs 8**.

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

2. Connect the analog Play/Out jacks of a cassette deck, MD, CD-R or other audio recorder to the **Tape Input jacks 1**. Connect the analog Record/In jacks on the recorder to the **Tape Output jacks 2** on the AVR.
3. Connect the output of any digital sources to the appropriate input connections on the AVR rear panel. Note that the **Optical** and **Coaxial** digital inputs **22 10 5 17** may be used with a Dolby Digital or DTS source or the output of a conventional CD, MD or LD player's PCM (S/P-DIF) output.
4. Assemble the AM Loop Antenna supplied with the unit as shown below. Connect it to the **AM** and **GND** screw terminals **4**.



5. Connect the supplied FM antenna to the **FM (75 ohm) connection 7**. The FM antenna may be an external roof antenna, an inside powered or wire lead antenna or a connection from a cable system. Note that if the antenna or connection uses 300-ohm twin-lead cable, you must use a 300-ohm-to-75-ohm adapter to make the connection.
6. Connect the front, center and surround speaker outputs to the respective speakers.

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

Regardless of the brand of cable selected, we recommend that you use a cable constructed of fine, multistrand copper with an area greater than 2 mm<sup>2</sup>.

Cable with an area of 1.5 mm<sup>2</sup> may be used for short runs of less than 4 m. We do not recommend that you use cables with an area less than 1mm<sup>2</sup> due to the power loss and degradation in performance that will occur.

When connecting wires to the speakers, be certain to observe proper polarity. Remember to connect the "negative" or "black" wire to the same terminal on both the receiver and the speaker. Similarly, the "positive" or "red" wire should be connected to like terminals on the AVR and speaker.

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

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

7. Connections to a subwoofer are normally made via a line level audio connection from the **Subwoofer Output 11** to the line-level input of a subwoofer with a built-in amplifier. When a passive subwoofer is used, the connection first goes to a power amplifier, which will be connected to one or more subwoofer speakers. If you are using a powered subwoofer that does not have line-level input connections, follow the instructions furnished with the speaker for connection information.

**Note:** Speaker sets with two front satellites and a passive subwoofer must be connected to the **front speaker outputs** only rather than to the **Subwoofer Output 11**.

8. If an external multi-channel audio source with 5.1 outputs such as an external digital processor/decoder, DVD-Audio or SACD™ player is used, connect the outputs of that device to the **6-Channel Direct Inputs 24**.

### Video Equipment Connections

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

1. Connect a VCR's audio and video Play/Out jacks to the **Video 2 In jacks 20 21** on the rear panel. The Audio and Video Record/In jacks on the VCR should be connected to the **Video 1 Out jacks 5 19** on the AVR.
2. Although any video device may be connected to these jacks, we recommend connecting your TV to the **Video 1 Audio/Video Input Jacks 3 23** so that you may take advantage of the fact that the remote control is preprogrammed with TV product codes for the Video 1 device. For the same reason, we recommend connecting your video recorder, cable TV converter or satellite receiver to the **Video 2 Audio/Video Input Jacks 20 21**.
3. Connect the analog audio and video outputs of a DVD to the **DVD jacks 6 13**. This is valid only if your DVD player does not have a HDMI Output. If a HDMI Output is available on the DVD player, connect it to the **HDMI Inputs 13**. Please note that these Inputs are Video only. Audio must be connected separately.
4. Connect the digital audio outputs of a CD, MD or DVD player, satellite receiver, cable box or HDTV converter to the appropriate **Optical** or **Coaxial Digital Inputs 10 22 5 17**. Remember that the DVD source defaults to the **Coaxial 1 Digital Input 10**. All other sources default to their analog inputs, although any source may be assigned to any digital audio input on the receiver.

5. Connect the **Composite Monitor Output 12** jacks on the receiver to the composite input of your television monitor or video projector.
6. If your DVD player and monitor both have component video connections, connect the component outputs of the DVD player to the **Video 1 Component Video Inputs 9**. Note that even when component video connections are used the audio connections must still be made to either the analog **DVD Audio Inputs 6** or any of the **Coaxial or Optical Digital Input jacks 10/22**.
7. If another component video device is available, connect it to the **Video 2 Component Video Input jacks 16**. The audio connections for this device should be made to either the **Video 2 Input jacks 20** or any of the **Coaxial or Optical Digital Input jacks 10/22**.
8. If the component video inputs are used, connect the **Component Video Output 15** 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 **Front Panel Inputs 5/17/18**. A device connected to the **Video 3 jacks 18** is selected as the Video 3 input, and connected to the digital jacks **5/17** it is selected as "Optical 3" or "Coaxial 3" input. (See page 14 for more information on input configuration.)
10. Connect the AVR to your video display using one of the following connections, even if you will also use an HDMI connection:
  - If your video display has component video inputs (Y/Pr/Pb), connect the **Component Video Output 21**.
  - If your display does not have component video inputs, connect the **Video Monitor Output 12** (Composite) on the AVR to the matching input on your display. Only one connection is needed.

### Video Connection Notes:

- Y/Pr/Pb Component, RGB, or Composite video signals may only be viewed in their native formats and will not be converted to the other formats.
- All component inputs/outputs can be used for RGB signals too, in the same way as described for the Y/Pr/Pb signals, then connected to the jacks with the corresponding color. But this is only correct as long as only the three RGB video signals are output by the video source, with a sync signal in the "G" signal only, without any sync signal output separately by the source.

### HDMI Connections

HDMI™ is the abbreviation for High-Definition Multimedia Interface, which is quickly becoming the standard connection point between advanced video/audio source products and displays, particularly for high-definition video signals. HDMI is a digital connection, eliminating the need to convert signals back and forth from digital to analog.

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

The AVR 142 is equipped for HDMI switching, which means that it is able to select either of the three HDMI inputs as the source that feeds your system's video display. This preserves the digital signal in its original form by passing it directly through from source to display. However, this also means that the AVR does not have access to the signal and thus it is not able to add menus or on-screen messages to HDMI signals, or to process the audio that may be part of the signal in an HDMI connection.

Therefore, the following connections are required when the AVR is used with HDMI sources:

- Connect the HDMI output of a source to either of the **HDMI Inputs 13**.
- Connect the **HDMI Output 14** of the AVR to an HDMI input on your display.
- Connect either an optical or coaxial digital audio output from the source to the AVR. The default connections are **Coaxial 2 10** for a source connected to **HDMI 1 13** and **Optical 2 22** for a source connected to **HDMI 2 14**. You may use any digital or analog audio source in conjunction with the HDMI inputs, but if it varies from the default you must make a change to the input's setting, as shown on page 18.
- *Even when HDMI inputs are used, it is important to make sure that a component or composite video connection is made between the AVR and your display. This is needed to view both the setup menus and onscreen messages, and to view other (non-HDMI) video sources. The AVR does not convert analog video signals to HDMI.*
- All component inputs/outputs can be used for RGB signals too, in the same way as described for the Y/Pr/Pb signals, then connected to the jacks with the corresponding color. But this is only correct as long as only the three RGB video signals are output by the video source, with a sync signal in the "G" signal only, without any sync signal output separately by the source.

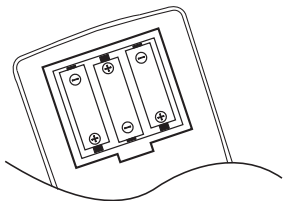
## System Configuration

Once the speakers have been placed in the room and connected, the remaining steps are to program the system configuration memories. With the AVR two kind of memories are used, those associated individually with the input selected, e.g. surround modes, and others working independently from any input selected like speaker output levels, or delay times used by the surround sound processor.

### First Turn On

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

1. Plug the **Power Cable 17** into an unswitched AC outlet.
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 3** will turn orange, 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 may 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 bottom of the battery compartment.



5. Turn the AVR on either by pressing the **System Power Control 2** or the **Input Source Selector 11** on the front panel, or via the remote by pressing the **AVR Selector 43** or any of the **Input Selectors 6** on the remote. The **Power Indicator 3** will turn blue to confirm that the unit is on, and the **Main Information Display 16** will also light up.

**NOTE:** After pressing one of the **Input Selector buttons 6** to turn the unit on, press the **AVR Selector 43** to have the remote control the AVR functions.

### Settings to be Made With Each Input Used

The AVR features an advanced memory system that enables you to establish different settings for the speaker configuration, digital input, surround mode, delay times and output levels for each input source. This flexibility enables you to custom tailor the way in which you listen to each source and have the AVR memorize them. This means, for example, that you may associate different surround modes and analog or digital inputs with different sources, or set different speaker configurations with the resultant changes to the bass management system or the use of the Center speaker. Once these settings are made, they will automatically be recalled whenever you select an input.

The default settings for the AVR, as it is shipped from the factory, have all inputs set for an analog source (except for the DVD input, which has the **Coaxial Digital Input 1 10** as the default), with Logic 7 Music as the surround mode, all speaker positions set to "small", and a subwoofer connected. Before using the unit, you will probably want to change these settings for most inputs so that they are properly configured to reflect the use of digital or analog inputs, the type of speakers installed and the surround mode associated with the input.

### Input Setup

The first step in configuring the AVR is to select an input. This may be done by pressing the front panel **Input Source Selector 11** until the desired input's name appears in the **Main Information Display 16**. The input may also be selected by pressing the appropriate Input Selector on the remote control **6 43**.

The second step is to associate one of the digital inputs with the selected input source (if this is needed, otherwise the selected analog input will remain). Press the **Digital Input Select button 35** on the remote. Within five seconds, make your input selection using the **▲ ▼ buttons 36** on the remote until the desired digital or analog input is shown in the **Main Information Display 16**. Then press the **OK button 11** to enter the new digital input assignment.

After the setting has been made with one input, repeat as described above with all inputs in use. The digital input associated with the input selected can also be changed at any time later and the AVR's memory system will keep the settings until they are changed again.

### Speaker Setup

This setup tells the AVR which type of speakers are in use. This is important as it adjusts the settings that determine which speakers receive low frequency (bass) information and whether a Center speaker should be used or not, separately for each input used. For each of these settings use the **LARGE** setting if the speakers for a particular position are traditional full-range loudspeakers that are capable of reproducing sounds below 100Hz. Use the **SMALL** setting for smaller, frequency-limited satellite speakers that do not reproduce sounds below 100Hz. Note that when "small" front (left and right) speakers are used, a subwoofer is required 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.

With the AVR turned on, follow these steps to configure the speakers:

1. Press the **Speaker button 10** on the remote. The words **FRONT SPEAKER** will appear in the **Main Information Display 16**.
2. Press the **OK button 11**.
3. Press the **▲ ▼ buttons 36** on the remote to select **FRONT LARGE** or **FRONT SMALL**, matching the type of speakers you have at the left-front and right-front positions, as described by the definitions shown in preceding section.

When **SMALL** is selected, low frequency front channel sounds will be sent only to the subwoofer output. Note that if you choose this option and there is no subwoofer connected, you will not hear any low frequency sounds from the front channels. This setting is not available with stereo mode to ensure purest sound by bypassing the crossovers of the DSP's.

When **LARGE** is selected, a full-range output will be sent to the front left and front right outputs. Depending on the subwoofer configuration (see below), the front left and right bass information may also be directed to a subwoofer.

**Important Note:** When a speaker set with two front satellites and a passive subwoofer is used, connected to the **front speaker outputs**, the fronts must be set for **LARGE**.

4. When you have completed your selection for the front channels, press the **OK button 11**, and then press the **▲ ▼ buttons 36** on the remote to change the display to **CENTER SPEAKER**.

5. Press the **OK** button **11** again, and use the **▲▼** buttons **36** on the remote to select the option that best describes your system based on the Center speaker definitions shown in preceding section.

When **SMALL** is selected, low frequency center channel sounds will be sent to the Fronts, if they are set for **LARGE** and Sub is turned off. When Sub is on, low frequency center channel sounds will be sent to the subwoofer only.

When **LARGE** is selected, a full-range output will be sent to the center speaker output, and with analog and digital surround modes (except with the Pro Logic II Music mode) NO center channel signal will be sent to the subwoofer output.

When **NONE** is selected, no signal 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 and its bass will be sent to the subwoofer output too as long as SUB L/R+LFE is selected in the SUBWOOFER line in this menu (see below). This mode is needed if no Center speaker is used. Note that for the use of Logic 7C surround mode a Center speaker is needed, but Logic 7M works well without a Center too.

6. When you have completed your selection for the center channel, press the **OK** button **11**, and then press the **▲▼** buttons **36** on the remote to change the display to **SURR SPEAKER**.

7. Press the **OK** button **11** again, and then use the **▲▼** buttons **36** on the remote to select the option that best describes your system based on the Surround speaker definitions shown in preceding section.

When **SMALL** is selected, with all digital surround modes low frequency surround channel sounds will be sent to the Fronts, when Sub is turned off, or to the subwoofer output when Sub is on. With the analog surround modes the rear bass feed depends on the mode selected and the setting of the sub and front speakers.

When **LARGE** is selected, a full-range output will be sent to the surround channel outputs (with all analog and digital surround modes), and, except with Hall and Theater modes, NO surround channel bass 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. Note that for optimal performance when no surround speakers are in use, the Dolby 3 Stereo mode should be used instead of Dolby Pro Logic.

8. When you have completed your selection for the surround channel, press the **OK** button **11**, and then press the **▲▼** buttons **36** on the remote to change the display to **S-W SPEAKER**.

9. Press the **OK** button **11**, and then press the **▲▼** buttons **36** on the remote to select the option that best describes your Subwoofer 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, press the arrow buttons **36** so that **SUB NONE** appears in the display. When this option is selected, all bass information will be routed to the front left/right “main” speakers.
- If a subwoofer is connected to the AVR, you have the option to have the front left/right “main” speakers reproduce bass frequencies at all times, and have the subwoofer operate only when the AVR is being used with a digital source that contains a dedicated Low Frequency Effects, or LFE soundtrack. This allows you to use both your main and subwoofer speakers to take advantage of the special bass created for certain movies. To select that option press the arrow buttons **36** so that **SUB LFE** appears in the display.
- 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 you are listening to, press the arrow buttons **36** so that **SUB L/R+LFE** appears in the display. When this option is selected, a “complete” feed will be sent to the front left/right “main” speakers, and the subwoofer will receive the front left and right bass frequencies under the crossover frequency 80 Hz, additionally to the LFE soundtrack (see above).

10. When all speaker selections have been made for the input selected, press the **OK** button **11** twice or simply wait for three seconds until the display returns to the normal mode.

## Surround Setup

Once the speaker setup has been completed, the next setup step is to set the surround mode you wish to use with each input. Since surround modes are a matter of personal taste, feel free to select any mode you wish – you may change it later. To make it easier to establish the initial parameters for the AVR, it is best to leave the default setting of Logic 7 Music mode for most analog inputs and Dolby Digital for inputs connected to digital sources. In the case of inputs such as a CD Player, Tape Deck or Tuner, you may wish to set the mode to Stereo, if that is your preferred listening mode for standard stereo sources, where it is unlikely that surround encoded material will be used.

To set the surround mode you wish to use with the input selected, press the **Surround Mode Selector** button **7** on the front or **39 36** on the remote until the desired surround mode’s name appears in the **Main Information Display 16**.

Note that Dolby Digital and DTS will only appear as choices when a digital input has been selected.

After the surround mode setting has been made with the current input, repeat the setting with all inputs you will use. The surround mode can also be changed at any time later, and the AVR’s memory system will keep the settings for the input selected, until they are changed again.

## Configuring the Surround Off (Stereo) Modes

For superior reproduction of two-channel program materials, the AVR offers two Stereo modes: an analog Stereo-Direct mode that bypasses the digital signal processing circuitry for a completely analog signal path that preserves the purity of the original signal, and a digital mode that is capable of providing bass management for optimal distribution of the low frequencies between smaller speakers and a subwoofer.

### Stereo-Direct (Bypass) Mode

When the analog Stereo-Direct mode is selected by pressing the **Stereo Mode Selector 20** until **SURROUND OFF** appears in the **Main Information Display 16** the AVR will pass the analog source material directly through to the front left and right speakers, bypassing the digital processing circuitry.

In this mode, the front left and right speakers will automatically be configured as **LARGE**; it is not possible to configure these speakers as **SMALL**.

## System Configuration

When the AVR is in the Stereo Bypass mode you may still configure the subwoofer output so that it is either turned off, with a full-range signal going to the front left/right speakers, or you may configure it so that the subwoofer feed is activated. The factory default setting is to have the subwoofer turned off for this mode, but you may change that setting by following these steps:

1. Press the **Speaker Button 10**.
2. Press the **OK Button 11** to activate the configuration menu.
3. Press the **▲ ▼ Buttons 36** on the remote to select the desired option. **SUB NONE** turns off the feed to the subwoofer, while **SUB <L+R>** turns it on.
4. When the desired setting has been entered, press the **OK Button 11** to return to normal operation.

### Stereo-Digital Mode

When the Stereo-Direct (Bypass) mode is in use a full range signal is always sent to the front left/right speakers. By its nature, that option does not pass the signal through the AVR's digital signal processing, creating the requirement for full-range speakers. If your front speakers are bandwidth limited, "satellite" speakers, we recommend that you do NOT use the Bypass mode, but rather use the **DSP SURROUND OFF** mode for stereo listening.

To listen to programs in the two-channel stereo mode while taking advantage of the bass management system, press the **Stereo Mode Selector 20** until **SURROUND OFF** appears in the **Main Information Display 16**.

When this mode is in use, the front left/right speakers and subwoofer may be configured to meet the requirements of your specific speakers using the steps shown in the Speaker Setup section.

### Delay Settings

Only for the Dolby or DTS modes, you will need to adjust the delay time setting. Note that the delay time is not adjustable for any other modes.

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 or surround speakers is different. You may compensate for this difference through the use of the delay settings to adjust the timing for the specific speaker placement and acoustic conditions in your listening room or home theater.

The factory setting is appropriate for most rooms, but some installations create an uncommon distance between the front and surround speakers that may cause the arrival of front channel sounds to become disconnected from surround channel sounds.

To resynchronize the front, center and surround channels, follow these steps:

1. Measure the distance from the listening/viewing position to the front speakers in meters.
2. Measure the distance from the listening/viewing position to the surround speakers.
3. Press the **Delay Button 12**.
4. When **FRONT L DELAY** appears in the **Main Information Display 16** press the **OK Button 11**.
5. Press the **▲ ▼ Buttons 36** on the remote to enter the distance from the front left/right speakers to your listening position. Press the **OK Button 11** when this is complete.
6. Press the **▲ ▼ Buttons 36** on the remote so that **CENTER DELAY** appears in the **Main Information Display 16** and press the **OK Button 11** (After **CENTER DELAY**, you will see **FRONT R DELAY**).
7. Press the **▲ ▼ Buttons 36** on the remote to enter the distance from the center speaker to your listening position. Press the **OK Button 11** when this is complete.
8. Press the **▲ ▼ Buttons 36** on the remote so that **SURR DELAY R** and after that **SURR DELAY L** appears in the Lower Display Line and press the **OK Button 11**.
9. Press the **▲ ▼ Buttons 36** on the remote to enter the distance from the surround speakers to your listening position. Press the **OK Button 11** when this is complete.
10. When all adjustments have been made, the unit will return to normal operation in five seconds.

### Night Mode Settings

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

To adjust the Night mode setting press the **Input Source Selector 11** on the front or **6** on the remote and select an input that is associated with a digital input and the Dolby Digital surround mode.

Next press the **Night button 25** on the remote. When the button is pressed, the words **D-RANGE** (Dynamic Range) followed by the current setting (MID, MAX, OFF) will appear in the **Main Information Display 16**. Press the **▲ ▼ buttons 36** within five seconds to select the desired setting:

**OFF**: When **OFF** is shown in the display, the Night mode will not function.

**MID**: When **MID** is shown in the display, a mild compression will be applied.

**MAX**: When **MAX** is shown in the display, a more severe compression algorithm will be applied.

When you want to use the Night mode feature, we recommend that you select the MID setting as a starting point and change to the MAX setting later, if desired.

### Output Level Adjustment

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

**NOTE**: 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 ambiance, a special effect or to continue action from the front of the room to the rear. When 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.

**IMPORTANT NOTE**: The output level can be adjusted for each digital and analog surround mode separately. This allows you to compensate for level differences between speakers, that may also vary with the surround mode selected, or to increase or decrease the level of certain speakers intentionally, depending on the surround mode selected. Note that adjustments made for any surround mode are effective with all inputs associated with that surround mode.

## System Configuration

Before beginning the output level adjustment process, make certain that all speaker connections have been properly made. The system volume should be turned down at first.

For the easiest set-up, follow these steps while seated in the listening position that will be used most often:

1. Make certain that all speaker positions have been properly configured for their “large” or “small” settings (as outlined above).
2. Adjust the volume so that it is at **-1.5**, as shown in the on-screen display or **Main Information Display 16**.

To adjust and calibrate the output levels, follow these steps. For accurate calibration, it is a good idea to make these adjustments while seated in your favorite listening position. As the adjustment must be made for each surround mode, it is best to select any input associated with any Dolby Pro Logic II mode, make the adjustment for that surround mode, then step through all inputs you’re using (and thus through all surround modes associated with the inputs) and repeat the adjustment when any surround mode appears that has not yet been adjusted.

1. Select any input associated with any Dolby Pro Logic II surround mode by pressing the **Input Source Selector 11 6** until **PRO LOGIC II** is shown in the **Main Information Display 16**.
2. Press the **Test button 38** on the remote. The words **T - T FL 0dB** will appear in the **Main Information Display 16**.
3. The test noise will immediately begin to circulate in the speakers in a clockwise rotation, pausing at each position for two seconds. As the test noise rotates the speaker positions **FL, C, FR, SR, SL** (Front Left, Center, Front Right, Surround Right, Surround Left) will be shown in the **Main Information Display 16**. Turn up the volume now until you can hear the noise clearly.

**IMPORTANT NOTE:** Because this test noise will have a much lower level than normal music, the volume must be lowered after the adjustment for all channels is made, **BEFORE** you turn the test tone off.

**NOTE:** This is a good time to verify that the speakers have been properly connected. As the test noise circulates, listen to make certain that the sound comes from the speaker position shown in the Main Information Display. If the sound from a speaker location does **NOT** match the position indicated in the display, turn the AVR off using the **Main Power Switch 1** and check the speaker wiring to make certain that each speaker is connected to the correct output terminal.

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 36** on the remote to bring all speakers to the same volume level. Note that when one of the **▲ ▼ buttons** 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.

Continue to adjust the individual speakers until they all have the same volume. Note that adjustments should be made with the **▲ ▼ buttons 36** on the remote only, **NOT** the main volume controls.

When all channels have the same output level, turn the **Volume 14 8** down to about **-40dB**, otherwise the listening level may be too high as soon as the source’s music starts to play. Afterwards press the **Test Button 38** again to turn the test tone off and complete the process.

**IMPORTANT NOTE:** The Output level adjustment made will be effective for the surround mode currently selected, also when other inputs are selected using the same surround mode. To adjust the output level with all other surround modes used, step through all inputs you’re using by pressing the **Source Selector buttons 11** on the front panel or the appropriate **Input Selectors 6** on the remote. When the indicator for any surround mode for which the level adjustment has not yet been made lights in the **Main Information Display 16**, repeat the level adjustment described above. This will also allow you to compensate level differences between speakers, that may be different with each surround mode, or to increase or decrease the level of certain speakers intentionally, depending on the surround mode selected.

Once the settings outlined on the previous pages have been made, the AVR 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. 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 above. Note that any settings changed at any time, will be stored in memory in the AVR, also if it’s turned off completely, unless reset (see page 22).

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

# Operation

## Basic Operation

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

### Turning the AVR On or Off

- When using the AVR for the first time, you must press the **Main Power Switch 1** on the front panel to turn the unit on. This places the unit in a Standby mode, as indicated by the orange color of the **Power Indicator 3**. Once the unit is in Standby, you may begin a listening session by pressing the **System Power Control 2** or the **Source button 11** on the front panel, or the **AVR Selector** on the Remote Control **43**. Note that the **Power Indicator 3** 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 Standby by pressing any of the **Source Selector** buttons on the remote **6 42 43**.

**Note:** After pressing the the **DVD or HDMI 1 Button 6** to turn the unit on, press the **AVR Selector 43** to have the remote control all of the AVR functions. Please refer to the Remote Function List on page 7 for an overview.

To turn the unit off at the end of a listening session, simply press the **System Power Control 2** on the front panel or the **Power Off Button 4** on the remote.

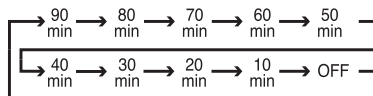
When the remote is used to turn the unit "off" it is actually placing the system in a Standby mode, as indicated by the orange color of the **Power Indicator 3**.

When 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 may be lost if the unit is left turned off with the **Main Power Switch 1** for more than two weeks.

### Using the Sleep Timer

- To program the AVR for automatic turn-off, press the **Sleep Button 40** on the remote. Each press of the button will increase the time before shut down in the following sequence:



When the programmed sleep time has elapsed, the unit will automatically turn off (to Standby mode). Note that the front panel display will dim to one half brightness when the Sleep function is programmed. To cancel the Sleep function, press and hold the **Sleep Button 40** until the information display returns to normal brightness and the **SLEEP OFF** message appears in the **Main Information Display 16**.

## Source Selection

- To select a source, press any of the **Source Selector** buttons on the remote **6 42 43**.

**Note:** After pressing the **DVD or HDMI 1 Button 6** you must press the **AVR Selector 43** to have the remote control all of the AVR functions.

- The input source may also be changed by pressing the front-panel **Input Source Selector** button **11**. Each press of the button will move the input selection through the list of available inputs.
- As the input is changed, the AVR will automatically switch to the digital input (if selected), surround mode and speaker configuration that were entered during the configuration process for that source.
- The front-panel **Video 3 Inputs 18**, **Optical Digital 3 Input 5** or the **Coaxial Digital 3 Input 17** may be used to connect a device such as a video game or camcorder to your home entertainment system on a temporary basis.
- As the input source is changed, the new input name will appear in the **Main Information Display 16**.
- When a pure audio input (CD, Tuner, Tape, 6/8 Channel Input) is selected, the last video input used remains routed to the **Video Outputs 5 19** and **Video Monitor Output 12**. This permits simultaneous viewing and listening to different sources.
- When a Video source is selected, its audio signal will be fed to the speakers and the video signal for that input will be routed to the appropriate **Monitor Output Jack 12** and will be viewable on a TV monitor connected to the AVR. If a component video source is connected to the **Video 1 9** or **Video 2 16 Component Inputs**, it will be routed to the **Component Video Outputs 15**. Make certain that your TV is set to the proper input to view the appropriate video signal (composite or component video).

## Controls and Use of Headphones

- Adjust the volume to a comfortable level using the front panel **Volume Control 14** or remote **Volume Up/Down 8** buttons.
- To temporarily silence all speaker outputs press the **Mute** button **5**. 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. Press the **Mute** button **5** again to return to normal operation.

- During a listening session you may wish to adjust the **Bass Control** and **Treble Control** to suit your listening tastes or room acoustics.
- To set the output of the AVR so that the output is "flat," with the Tone controls de-activated, press the **Tone Mode** button **30** once or twice so that the words **TONE OUT** appear momentarily in the **Main Information Display 16**. To return the tone controls to an active condition, press the **Tone Mode 30** button once or twice so that the words **TONE IN** momentarily appear in the **Main Information Display 16**.
- To change the Bass or Treble Control settings press the **Tone Mode Button 30** until the word Bass or Treble appear momentarily in the **Main Information Display 16**. Press the **OK Button 11** followed by the **Left/Right Buttons 36** to adjust the setting. When done, press the **Tone Mode Button 30** again to exit the Tone Mode Menu.
- For private listening, plug the 6.3 mm stereo phone plug from a pair of stereo headphones into the front panel **Headphone Jack 4**. Note that when the headphone's plug is connected, the word **HEADPHONE** will scroll once across the **Main Information Display 16** and all speakers will be silenced. When the headphone plug is removed, the audio feed to the speakers will be restored.
- When the headphones are in use, you may take advantage of the Dolby Headphone modes to bring added spaciousness to headphone listening. Press the **Dolby Mode Select Button 27** or the **Surround Mode Group Selector 7** to cycle through the three Dolby Headphone modes to select the one that you prefer.

## Surround Mode Selection

One of the most important features of the AVR is its ability to reproduce a full multichannel surround sound field from digital sources, analog matrix surround encoded programs and standard stereo or even mono programs. In all, a total of fifteen listening modes are available on the AVR.

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, CD's or TV programs bearing the logo of one of the major surround encoding processes, such as Dolby Surround should be played in either the Dolby Pro Logic II Movie (with movies) or Music (with music) surround mode or with the Harman Kardon exclusive Logic 7 Movie Mode, to create a full range discrete 5.1 channel surround signal from surround encoded programs with a stereophonic left and right rear signal, just as it was recorded in real life (e.g. sound being recorded from left rear side will be heard from that side only).



## Operation

When no rear speakers are in use, the Dolby 3 Stereo mode should be selected with all surround recordings.

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

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

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

Even when a program is not listed as carrying intentional surround information, you may find that the Dolby Pro Logic II, Dolby 3 Stereo or Logic 7 modes often deliver enveloping surround presentations through the use of the natural surround information present in all stereo recordings.

However, for stereo programs without any surround information the Theater, Hall and 5CH Stereo modes should be tried (effective particularly with old "extreme" stereo recordings) and for mono programs, we suggest that you try the Theater or Hall modes.

Dolby Virtual Speaker technology uses a next-generation advanced algorithm to reproduce the dynamics and surround sound effects of a precisely placed 5.1-channel speaker system using only front left and right speakers. In the Reference Mode, the apparent width of the sound across the front image is defined by the distance between the two speakers. The Wide Mode provides a wider, more spacious front image when the two speakers are close together.

The **Dolby Surround Button** **27** switches between Dolby PL II (Movie, Music or Game), Dolby Pro Logic, Dolby 3 Stereo, 2 Speaker Mode/Dolby VS Ref, 3 Speaker Mode/Dolby VS Ref, 2 Speaker Mode/Dolby VS Wide, 3 Speaker Mode/Dolby VS Wide, 4 Speaker Mode/Dolby VS Wide, 5 Speaker Mode/Dolby VS Wide. When selecting 2, 3, 4 and 5 Speaker Modes, please wait about two seconds for the display to show which Dolby Virtual Speaker function is active.

Surround modes are selected using either the front panel controls or the remote. To select a surround mode from the front panel, press the **Surround Mode Group Selector Button** **7** to scroll through the list of available surround groups (for example, any Dolby mode or Logic 7 mode). Next press the **Surround Mode Selector Button** **13** to choose the specific mode within the desired group (for example, within the Dolby mode group the options are Dolby Pro Logic, Dolby Pro Logic II Music, Dolby Pro Logic II Movies and Dolby 3 Stereo). To select a surround mode using the remote, press any of the surround mode selector buttons **19 20 21 26 27 39** until the desired mode appears. As you press the buttons, the Surround mode name will appear in the **Main Information Display** **16**. Note that any time a surround mode is changed it remains associated with the input just selected until another choice is made.

**NOTE:** The name of each Surround Mode will scroll through the **Main Information Display** **16** while the modes are being selected. To avoid exiting from the surround mode selection process, be certain to push the **▲ ▼** buttons **36** while a mode name is still visible.

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

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), follow the instructions shown above for using the remote until **SURR OFF** appears in the **Main Information Display** **16**.

### Digital Audio Playback

Digital audio is a major advancement over older analog matrix surround systems. It delivers five discrete channels: left front, center, right front, left surround and right surround. 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". 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 (originally known as AC-3®) is a standard part of DVD, and is available on satellite broadcasts and is a part of the new high-definition television (HDTV) system.

### DTS

DTS is another digital audio system that is capable of delivering 5.1 audio. 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.

### PCM Audio Playback

PCM (Pulse Code Modulation) is the non-compressed digital audio system used for compact discs, and some special PCM encoded DVDs. The digital circuits in the AVR are capable of high quality digital-to-analog decoding, and they may be connected directly to the digital audio output of your CD/DVD player.

Connections may be made to the **Optical** or **Coaxial** inputs **10/22** on the rear panel or front panel **5/17**.

To listen to a PCM digital source, first select the input for the desired source (e.g., CD) to feed its video signal (if any) to the TV monitor and to provide its analog audio signal for recording. Next press the **Digital Select** button **35** and then use the **▲ ▼** buttons **36** on the remote until the desired choice appears in the **Main Information Display** **16**, then press the **OK** button **11** to confirm the choice.

When a PCM source is playing, a brief message PCM will appear in the **Main Information Display** **16**. During PCM playback you may select any surround mode except Dolby Digital or DTS.

## Operation

### Selecting a Digital Source

To utilize either digital mode you must have properly connected a digital source to the AVR. Connect the digital outputs from DVD players, HDTV receivers, satellite systems or CD players to the **Optical** or **Coaxial** inputs on the rear or front panel **10 22 5 17**. 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 rear panel (e.g., connect the analog stereo audio output from a DVD to the **DVD inputs 6** on the rear panel when you connect the source's digital outputs).

When playing a digital source such as DVD, first select its input using the remote or front panel controls as outlined in this manual in order to feed its video signal (if any) to the TV monitor and to provide its analog audio signal for recording. When the digital input appropriate with the DVD player is not selected automatically (due to the input settings made earlier during the system configuration, see page 12), select the digital source by pressing the **Digital Input Selector** button **35** and then using the **▲ ▼** buttons **36** on the remote to choose any of the **OPTICAL (OPT)** or **COAXIAL (COAX)** inputs, as they appear in the **Main Information Display 16**. When the digital source is playing, the AVR will automatically detect whether it is a multichannel Dolby Digital, DTS source or a conventional PCM signal, which is the standard output from CD players.

### Digital Status

When a digital source is playing, the AVR 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 and some music DVDs or certain tracks on normal DVDs, it will allow the appropriate surround mode to be selected manually.

When a digital source is playing, the AVR will display a variety of messages to indicate the type of bitstream received. These messages will appear shortly after an input or surround mode is changed, and will remain in the **Main Information Display 16** for about five seconds before the display returns to the normal surround mode indication.

### Surround Mode Types

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 Dolby Digital 5.1 and DTS 5.1 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 Dolby Digital 5.1 and DTS 5.1 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.

The last number indicates if there is a discrete Low Frequency Effects (LFE) channel. This is the ".1" in the common abbreviation of "5.1" sound and it 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 5.1 and DTS 5.1 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.

An **UNL OCK** message may appear in the **Lower Display Line 16**. This is your indication that the digital audio data stream has been interrupted or is no longer present. When that occurs, the unit's digital signal processor has no signal to lock onto, and is thus "unlocked". You may see this message when a DVD is first started until the stream is playing and the processor determines which mode to apply; or any time the data stream is stopped or paused, such as when the menus of some discs are displayed or when the player is switching between the different sections of a disc. You may also see the message when a satellite receiver, cable set-top or HDTV tuner is in use if the digital audio is temporarily interrupted when channels are changed or when a cable box switches from a channel with a digital data stream to a channel with analog audio only. The **UNL OCK** message is normal, and does not indicate any problem with your receiver. Rather, it tells you that the incoming data has simply been paused or is not present for a variety of possible reasons.

When Dolby Digital 3/2/.1 or DTS 3/2/.1 signals are being played, the AVR will automatically switch to the proper surround mode, and no other processing may be selected. When a Dolby Digital signal with a 3/1/0 or 2/0/0 signal is detected you may select any of the Dolby surround modes.

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 package. In some cases you will see an 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.

## Night Mode

A special feature of Dolby Digital is the Night mode, which enables Dolby Digital input sources to be played back with full digital intelligibility while reducing the maximum peak level and lifting the low levels 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 mode is selected.

The Night mode may be engaged when a Dolby Digital DVD is playing by pressing the **Night Button 25** on the remote. Next, press the **▲▼ buttons 36** to select either the middle range or full compression versions of the Night mode. To turn the Night mode off, press the **▲▼ buttons 36** until the message in the lower third of the video display and the **Main Information Display 16** reads **D - RANGE OFF**.

The Night mode may also be selected to always be on at either level of compression as soon as the Dolby Digital mode is turned on using the options in the Night Mode settings. See above for information on using this option.

### IMPORTANT NOTES ON DIGITAL PLAYBACK:

1. When the digital playback source is stopped, or in a pause, fast forward or chapter search mode, the digital audio data will momentarily stop. This is normal and does not indicate a problem with either the AVR or the source machine. The AVR will return to digital playback as soon as the data is available and when the machine is in a standard play mode.
2. Although the AVR will decode virtually all DVD movies, CDs and HDTV sources, it is possible that some future digital sources may not be compatible with the AVR.
3. Note that not all digitally encoded programs and not all audio tracks on a DVD contain full 5.1-channel audio. Consult the program guide that accompanies the DVD to determine which type of audio has been recorded on the disc. The AVR will automatically sense the type of digital surround encoding used and adjust to accommodate it.
4. When a Dolby Digital or DTS source is playing, you normally may not be able to select some of the analog surround modes such as Dolby Pro Logic II, Dolby 3 Stereo, Hall, Theater, 5CH Stereo or Logic 7, except with special audio tracks (see indication "Dolby Digital" on page 17) or data format selected (see "PCM Audio Playback" on page 17).

5. When a Dolby Digital or DTS source is playing, it is not possible to make an analog recording using the **Tape 2** or **Video 1 5** record outputs, if the source is connected to any digital input of the AVR only. But the analog two channel signal of that source, the "Downmix" to Stereo or Dolby Surround, can be recorded by connecting its analog audio outputs to the appropriate analog inputs (e.g. DVD) of the AVR, even if the digital input of the AVR remains selected. Additionally, the digital signals will be passed through to the **Digital Audio Output 25**.

## Tape Recording

In normal operation, the audio or video source selected for listening through the AVR is sent to the record outputs. This means that any program you are watching or listening to may be recorded simply by placing machines connected to the outputs for **Tape Outputs 2** or **Video 1 Outputs 5 19** in the record mode.

## Output Level Trim Adjustment

Normal output level adjustment for the AVR is established using the test tone, as outlined on page 14. 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. Additionally, the output level for the subwoofer can only be adjusted using this procedure.

To adjust the output levels using program material, first select the surround mode for which you want to trim the speakers (see NOTE below) by selecting the appropriate input, associated with the desired surround mode, start your program material source and set the reference volume for the front left and front right channels using the **Volume Control 14 8**.

Once the reference level has been set, press the **Channel Select button 37** and note that **FRONT L LEVEL** will appear in the **Main Information Display 16** for five seconds. To change the level, first press the **OK button 11**, and then use the **▲▼ buttons 36** 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 **OK button 11** and then press the **▲▼ buttons 36** to select the next output channel location that you wish to adjust. To adjust the subwoofer level, press the **▲▼ buttons 36** until **WOOFER LEVEL** appears in the **Main Information Display 16** (only available if the subwoofer was selected during the speaker configuration, page 12).

Press the **OK button 11** when the name of the desired channel appears in the **Main Information Display 16** and on-screen display, and follow the instructions shown above to adjust the level.

Repeat the procedure as needed until all channels requiring adjustment have been set. When all adjustments have been made, press the **OK button 11** twice. The AVR will return to normal operation.

**NOTE:** The output levels may be separately trimmed for each digital and analog surround mode. If you wish to have different trim levels for a specific mode, select that mode and then follow the instructions in the steps shown above.

Changing the levels by the trim adjustment as described above will automatically change the level settings shown during the Output Level Adjustment (see page 14) correspondingly (and vice versa) and will remain in the AVR's memory system, even when the unit is turned off. With Stereo modes the adjustment procedure described above is the only way to trim the output level.

## 6-Channel Direct Input

The AVR is equipped for future expansion through the use of optional, external adapters for formats that the AVR may not be capable of processing. When an adapter is connected to the **6-Channel Direct Input 29**, you may select it by pressing the **6-Ch Direct Input Selector 7**. The 6-Channel Direct Input may also be selected by pressing the **Input Source Selector button 11** on the front panel until the words **6 CH DIRECT** appear in the **Main Information Display 16**.

Note that when the 6-Channel Direct Input is in use, you may not select a surround mode, as the external decoder determines processing. In addition, there is no signal at the record outputs when the 6-Channel Direct Input is in use.

## Display Brightness

The AVR's front panel **Main Information Display 16** is set at a default brightness level that is sufficient for viewing in a normally lit room. However, in some home theater installations, you may wish to occasionally lower the brightness of the display, or turn it off completely.

You can adjust the Display Brightness by pressing the **Dim Button 22** on the remote control. Note that the blue lighting inside the volume control and the **Power Indicator 3** will remain lit at normal brightness to remind you that the unit is still turned on.

## Operation

### Memory Backup

This product is equipped with a memory backup system that preserves tuner presets and system configuration information if the unit is turned off completely, accidentally unplugged or subjected to a power outage. This memory will last for approximately 1 week, after which time all information must be reentered.

### Tuner Operation

The AVR's tuner is capable of tuning AM, FM and FM Stereo broadcast stations and receiving RDS data. 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 **42** on the remote to select the tuner as an input. The tuner may be selected from the front panel by either pressing the **Input Source Selector** **11** until the tuner is active or by pressing the **Tuner Band Selector** **9** at any time.
2. Press the **AM/FM Tuner Select** button **42** or **Tuner Band Selector** **9** again to switch between AM and FM so that the desired frequency band is selected.
3. Press the **Tuner Mode** button **33** on the remote or hold the **Band Selector** **9** on the front panel pressed for 3 seconds to select manual or automatic tuning.

When the button is pressed so that **AUTO** appears in the **Main Information Display 16** each press of the **Tuning Selectors** **8** **31** 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 **Main Information Display 16** 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 **Main Information Display 16**.

4. Stations may also be tuned directly by pressing the **Direct** button **32**, and then pressing the **Numeric Keys** **34** that correspond to the station's frequency. The desired station will automatically be tuned after the latest number is entered. If you press an incorrect button while entering a direct frequency, press the **Clear** button **14** to start over.

**NOTE:** When the FM reception of a stereo station is weak, audio quality will be increased by switching to Mono mode by pressing the **Tuner Mode** button **33** on the remote or holding the **Band Selector** **9** on the front panel so that **MANUAL** appears momentarily in the **Main Information Display 16** and then goes out.

### Preset Tuning

Using the remote, up to 30 stations may be stored in the AVR'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 **13** on the remote. Note that two underscore lines will appear in the **Main Information Display 16**.
2. Within five seconds, press the **Numeric Keys** **34** corresponding to the location where you wish to store this station's frequency. Once entered, the preset number will appear in the **Main Information Display 16**.
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** **34** 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 **10** **15** on the front panel or remote.

### RDS Operation

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

### RDS Tuning

When an FM station is tuned in and it contains RDS data, the AVR will automatically display the station's call sign or other program service in the **Main Information Display 16**.

### RDS Display Options

The RDS system is capable of transmitting a wide variety of information in addition to the initial station call sign that appears when a station is first tuned. In normal RDS operation the display will indicate the station name, broadcast network or call letters. Pressing the **RDS** button **12** **16** enables you to cycle through the various data types in the following sequence:

- The station's call letters (with some private stations other information too).
- The station's frequency (**FREQ**).
- The Program Type (**PTY**).
- A "text" message (Radiotext, **RT**) containing special information from the broadcast station. Note that this message may scroll across the display to permit messages longer than the eight positions in the display. Depending on signal quality, it may take up to 30 seconds for the text message to appear; in that time, the word **TEXT** will flash in the Information Display when RT is selected.
- The current time of day (**CT**). Note that it may take up to two minutes for the time to appear. In that time the word **TIME** will flash in the information display when CT is selected. Please note that the accuracy of the time data is dependent on the radio station, not the AVR.

Some RDS stations may not include some of these additional features. If the data required for the selected mode is not being transmitted, the **Main Information Display 16** will show a **NO TYPE**, **NO TEXT** or **NO TIME** message after the individual time out.

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

## Program Search (PTY)

An important feature of RDS is its capability of encoding broadcasts with Program Type (PTY) codes that indicate the type of material being broadcast.

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

1. Press the **RDS** button **12 16** until the current PTY is shown in the **Main Information Display 16**.
2. While the PTY is shown, press the **Preset Up/Down** button **10 15** or hold them pressed to scroll through the list of available PTY types. To simply search for the next station transmitting any RDS data, use the **Preset Up/Down** button **10 15** until **RDS ONLY** appears in the display.
3. Press any of the **Tuning Up/Down** buttons **8 31**. The tuner begins to scan the FM band upwards or downwards for the first station that has RDS data that matches the desired selection, and acceptable signal strength for quality reception.
4. The tuner will make up to one complete scan of the entire FM band for the next station that matches the desired PTY type and has acceptable reception quality. If no such station is found, the display will read **NONE** for some seconds and the tuner will return to the last FM station in use before the search.

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

**NOTE:** Some stations transmit constant traffic information. These stations can be found by selecting **TRAFFIC**. The AVR will find the appropriate station, even if it is not broadcasting traffic information when the search is made.

# Troubleshooting Guide

SYMPTOM	CAUSE	SOLUTION
Unit does not function when <b>Main Power Switch 1</b> is pushed	<ul style="list-style-type: none"> <li>No AC Power</li> </ul>	<ul style="list-style-type: none"> <li>Make certain AC power cord is plugged into a live outlet</li> <li>Check to see if outlet is switch controlled</li> </ul>
Display lights, but no sound or picture	<ul style="list-style-type: none"> <li>Intermittent input connections</li> <li><b>Mute</b> is on</li> <li>Volume control is down</li> </ul>	<ul style="list-style-type: none"> <li>Make certain that all input and speaker connections are secure</li> <li>Press <b>Mute</b> button <b>5</b></li> <li>Turn up volume control</li> </ul>
Sound is heard, but Front-Panel Display does not light	<ul style="list-style-type: none"> <li>Display brightness is turned off</li> </ul>	<ul style="list-style-type: none"> <li>Follow the instructions in the Display Brightness section on page 19 so that the display is set to VFD FULL</li> </ul>
No sound from any speaker; light around <b>Power switch 2</b> is red	<ul style="list-style-type: none"> <li>Amplifier is in protection mode due to possible short</li> <li>Amplifier is in protection mode due to internal problems</li> </ul>	<ul style="list-style-type: none"> <li>Check speaker-wire connections for shorts at receiver and speaker ends</li> <li>Contact your local Harman Kardon service depot</li> </ul>
No sound from surround or center speakers	<ul style="list-style-type: none"> <li>Incorrect surround mode</li> <li>Incorrect configuration</li> <li>Stereo or Mono program material</li> <li>Speakers not properly connected</li> </ul>	<ul style="list-style-type: none"> <li>Select a mode other than Stereo</li> <li>Check speaker mode</li> <li>With (analog or digital) Dolby surround modes, the surround decoder may not create rear-channel information from non-encoded programs</li> <li>Check speaker-wire connections or use test tone to verify connections (see page 14)</li> </ul>
Unit does not respond to remote commands	<ul style="list-style-type: none"> <li>Weak batteries in remote</li> <li>Wrong device selected</li> <li><b>Remote sensor 15</b> is obscured</li> </ul>	<ul style="list-style-type: none"> <li>Change remote batteries</li> <li>Press the <b>AVR selector 43</b></li> <li>Make certain front-panel sensor is visible to remote or connect remote sensor</li> </ul>
Intermittent buzzing in tuner	<ul style="list-style-type: none"> <li>Local interference</li> </ul>	<ul style="list-style-type: none"> <li>Move unit or antenna away from computers, fluorescent lights, motors or other electrical appliances</li> </ul>
Digital Audio stops	<ul style="list-style-type: none"> <li>Digital audio feed paused</li> </ul>	<ul style="list-style-type: none"> <li>Resume play for DVD</li> <li>Check that Digital Signal is fed to the Digital Input selected</li> </ul>

## Processor Reset

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

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

To clear the AVR's entire system memory including tuner presets, output level settings, delay times and speaker configuration data, first put the unit in Standby by pressing the **System Power Control** button **2**. Next, press and hold the **Surround Mode** Button **7** for 5 seconds.

The unit will turn on automatically. Note that once you have cleared the memory in this manner, it is necessary to re-establish all system configuration settings and tuner presets.

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

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

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

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



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

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

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

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

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

# Technical Specifications for AVR Surround Receiver

## Audio Section

Stereo Mode	
Continuous Average Power (FTC)	
40 Watts per channel, 20Hz–20kHz,	
@ < 0.07% THD, both channels driven into 8 ohms	
Five-Channel Surround Modes	
Power Per Individual Channel, all channels driven simultaneously	
Front L&R channels:	
35 Watts per channel,	
@ < 0.07% THD, 20Hz–20kHz into 8 ohms	
Center channel:	
35 Watts,	
@ < 0.07% THD, 20Hz–20kHz into 8 ohms	
Surround channels:	
35 Watts per channel,	
@ < 0.07% THD, 20Hz–20kHz into 8 ohms	
Five-Channel Surround Modes	
(One channel driven into 6 ohms, 1kHz, @ <0.07% THD)	
Front L&R channels:	
70 Watts per channel	
Center channel:	
70 Watts	
Surround (L & R) channels:	
70 Watts per channel	
Input Sensitivity/Impedance	
Linear (High Level)	200mV/47kohms
Signal-to-Noise Ratio (IHF-A)	95dB
Surround System Adjacent Channel Separation	
Analog Decoding	40dB
(Pro Logic, etc.)	
Dolby Digital (AC-3)	55dB
DTS	55dB
Frequency Response	
@ 1W (+0dB, –3dB)	10Hz–100kHz
High Instantaneous	
Current Capability (HCC)	±25 Amps
Transient Intermodulation	
Distortion (TIM)	Unmeasurable
Rise Time	16µsec
Slew Rate	40V/µsec

## FM Tuner Section

Frequency Range	87.5–108MHz
Usable Sensitivity	IHF 1.3 µV/13.2dBf
Signal-to-Noise Ratio	Mono/Stereo: 70/65dB (DIN)
Distortion	Mono/Stereo: 0.15/0.3%
Stereo Separation	35dB @ 1kHz
Selectivity	±400kHz: 70dB
Image Rejection	80dB
IF Rejection	90dB

## AM Tuner Section

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

## Video Section

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

## General

Power Requirement	AC 230V/50Hz
Power Consumption	72W idle, 580W maximum (2 channels driven)
Dimensions (Max)	
Width	440mm
Height	165mm
Depth	382mm
Weight	9.6 kg

Depth measurement includes knobs, buttons and terminal connections.

Height measurement includes feet and chassis.

All features and specifications are subject to change without notice.

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