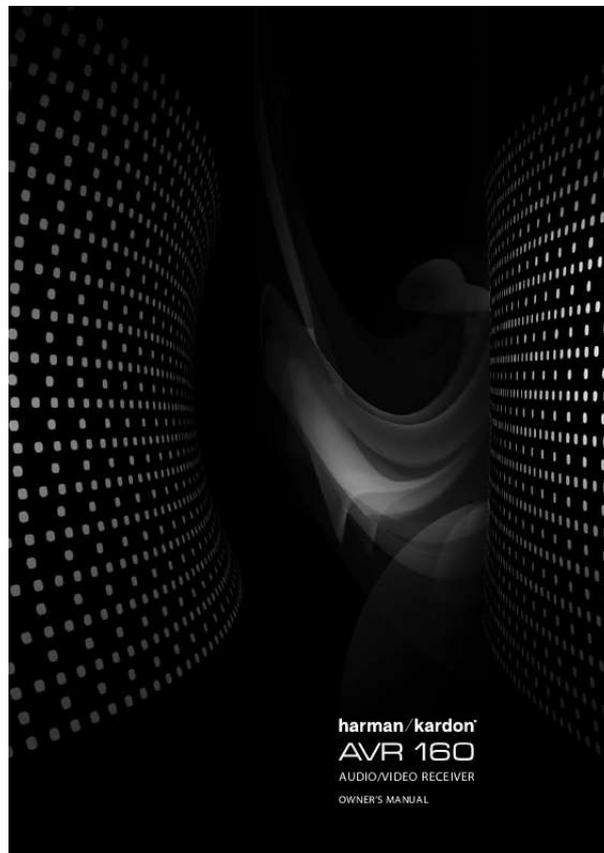




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You can read the recommendations in the user guide, the technical guide or the installation guide for HARMAN KARDON AVR 160. You'll find the answers to all your questions on the HARMAN KARDON AVR 160 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual HARMAN KARDON AVR 160
User guide HARMAN KARDON AVR 160
Operating instructions HARMAN KARDON AVR 160
Instructions for use HARMAN KARDON AVR 160
Instruction manual HARMAN KARDON AVR 160



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Manual abstract:

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. @ @9.

@ @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. @ @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. @ @15.

@ @16. @ @17. @ @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. We, Harman Consumer Group, Inc. 2, Route de Tours 72500 Château-du-Loir, FRANCE declare in our own responsibility, that the product described in this owner's manual is in compliance with technical standards: EN 60065:2002; A1EN 55013:2001; A1; A2 EN 55020:2007 EN 55022:2006 (Class B) EN 61000-3-2:2006 EN 61000-3-3:1995; A1; A2 Jurjen Amsterdam Harman Consumer Group, Inc. 07/09

Important Safety Information Verify Line Voltage Before use Your AVR 160 has been designed for use with 230-240 volt AC current.

Connection to a line voltage other than that for which it is intended can create a safety and fire hazard and may damage the unit. If you have any questions about the voltage requirements for your specific model, or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet. Do not use extension cords To avoid safety hazards, use only the power cord supplied with your unit. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them.

Damaged power cords should be replaced immediately by an authorized service center with a cord meeting factory specifications. Handle the ac power cord

Gently When disconnecting the power cord from an AC outlet, always pull the plug; never pull the cord. If you do not intend to use the unit for any considerable length of time, disconnect the plug from the AC outlet. **DECLARATION OF CONFORMITY 2 SAFETY INFORMATION** 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 warranty.

If water or any metal object such as a paper clip, wire or staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service center. moving the unit Before moving the unit, be certain to disconnect any interconnection cords with other components, and make certain that you disconnect the unit from the AC outlet. unpacking The carton and shipping materials used to protect your new receiver during shipment were specially designed to cushion it from shock and vibration. We suggest that you save the carton and packing materials for use in shipping if you move, or should the unit ever need repair. To minimize the size of the carton in storage, you may wish to flatten it. This is done by carefully slitting the tape seams on the bottom and collapsing the carton. Other cardboard inserts may be stored in the same manner. Packing materials that cannot be collapsed should be saved along with the carton in a plastic bag. If you do not wish to save the packaging materials, please note that the carton and other sections of the shipping protection are recyclable. Please respect the environment and discard those materials at a local recycling center.

It is important that you remove the protective plastic film from the frontpanel lens. Leaving the film in place will affect the performance of your remote control. **ENGLISH Installation Location** · To ensure proper operation and to avoid the potential for safety hazards, place the unit on a firm and level surface. When placing the unit on a shelf, be certain that the shelf and any mounting hardware can support the weight of the product. · Make certain that proper space is provided both above and below the unit for ventilation. If this product will be installed in a cabinet or other enclosed area, make certain that there is sufficient air movement within the cabinet. Under some circumstances, a fan may be required. · Do not place the unit directly on a carpeted surface. · Avoid installation in extremely hot or cold locations, or in an area that is exposed to direct sunlight or heating equipment. · Avoid moist or humid locations. · Do not obstruct the ventilation slots on the top of the unit, or place objects directly over them. · Due to the weight of the AVR 160 and the heat generated by the amplifiers, there is the remote possibility that the rubber padding on the bottom of the unit's feet may leave marks on certain wood or veneer materials. Use caution when placing the unit on soft woods or other materials that may be damaged by heat or heavy objects. Some surface finishes may be particularly sensitive to absorbing such marks, due to a variety of factors beyond our control, including the nature of the finish, cleaning materials used, and normal heat and vibration caused by the use of the product, or other factors. We recommend that caution be exercised in choosing an installation location for the component and in normal maintenance practices, as your warranty will not cover this type of damage to furniture.

cleaning When the unit gets dirty, wipe it with a clean, soft, dry cloth. If necessary, and only after unplugging the AC power cord, wipe it with a soft cloth dampened with mild soapy water, then a fresh cloth with clean water. Wipe it 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.



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INTRODUCTION TO HOME THEATER CONNECTIONS Speaker Connections Subwoofer Connecting Source Devices to the AVR Audio Connections Digital Audio Analog Audio Video Connections Digital Video Analog Video Antennas USB Port SPEAKER PLACEMENT GETTING STARTED INSTALLATION Step One Connect Source Devices Step Two Connect TV Step Three Connect Loudspeakers Step Four Connect FM Antenna Step Five Connect AM Antenna Step Six Plug in AC Power Cords Step Seven Insert Batteries in Remote Step Eight Program Sources Into the Remote Step Nine Turn On the AVR 160 INITIAL SETUP Using the On-Screen Menu System Configure the AVR 160, Using EzSet/EQTM Technology Set Up Sources 6-/8-Channel Inputs System Settings Dim Function 26 26 26 26 26 27 27 27 27 28 28 29 30 30 30 30 31 32 34 35 36 46 46 46 47 47 OPERATION Turning On the AVR Volume Control Mute Function Sleep Timer Tone Controls Headphones Source Selection Using the Radio RDS Functions Recording Aux Input Selecting a Surround Mode ADVANCED FUNCTIONS Audio Processing and Surround Sound Analog Audio Signals Digital Audio Signals Surround Modes Dolby Surround Settings Manual Speaker Setup Audio Settings Advanced Remote Control Functions APPENDIX TROUBLESHOOTING GUIDE Processor Reset Memory TECHNICAL SPECIFICATIONS Trademark Acknowledgments 4 INTRODUCTION Please register your AVR 160 at www.harmankardon.com. NOTE: You'll need the product's serial number. At the same time, you can choose to be notified about new products and/or special promotions. Harman Kardon aVr 160 7.1-channel audio/ Video receiver Audio Section · 40 Watts x 7, seven channels driven at full power at 8 ohms, 20Hz- 20kHz, <0.07% THD, 280 watts total. · High-current capability, ultrawide-bandwidth amplifier design with low negative feedback · All-discrete amplifier circuitry · 24-Bit, twin-core Cirrus Logic® CS 497024 DSP processor · 192kHz/24-bit A/D and D/A conversion · Sampling upconversion to 96kHz ENGLISH 5 · Quadruple-crossover bass management thank you for choosing a Harman Kardon® product! For more than fifty years, the Harman Kardon® mission has been to share a passion for music and entertainment, using leading-edge technology to achieve premium performance.

Harman Kardon, Inc., invented the receiver, a single component designed to simplify home entertainment without compromising performance. Over the years, Harman Kardon products have become easier to use, while offering more features and sounding better than ever. The AVR 160 7.1-channel digital audio/video receiver continues this tradition with some of the most advanced audio and video processing capabilities in its class, and a wealth of listening and viewing options. To obtain the maximum enjoyment from your new receiver, please read this manual and refer back to it as you become more familiar with its features and their operation. If you have any questions about this product, its installation or its operation, please contact your Harman Kardon retailer or custom installer, or visit the Web site at www.harmankardon.com. Surround Modes · Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD · Dolby Pro Logic® II and IIx (Movie, Music and Game), up to 96kHz · Harman Virtual Speaker · Harman Headphone · DTS-HD High Resolution Audio™, DTS-HD Master Audio™ · DTS® (5.

I; DTS Stereo; DTS-ES® 6.1 Discrete and Matrix) · DTS 96/24TM (DTS Stereo) · DTS Neo:6® (Cinema 5-,6- or 7-channel; Music 5-, 6- or 7-channel), up to 96kHz · Logic 7® (Movie, Music and Game), up to 96kHz · 5- or 7-Channel Stereo, up to 96kHz · Surround Off (DSP or Analog Bypass) INTRODUCTION audio Inputs · AM/FM tuner · CD · Tape · Front-panel Analog Audio · 6-/8-Channel Analog Audio · Auxiliary mini-jack ease of use · EzSet/EQTM automated setup (microphone supplied) · Text-based on-screen menu system available at composite video and HDMI outputs (576i only) · Two-line dot-matrix front-panel display · Color-coded connections · Programmable, 11-device remote control · Source input renaming · Lip Sync Delay (up to 180msec) · System upgradeable from USB device audio/Video Inputs · Three Analog Video · Front-panel Analog Video · Two Component Video 100MHz · Three HDMITM (V.1.3a with Deep Coutton to select the currently highlighted item. Message Display: Various messages appear in this two-line display in response to commands and changes in the incoming signal.

In normal operation, the current source name appears on the upper line, while the surround mode is displayed on the lower line. When the on-screen display menu system (OSD) is in use, the current menu settings appear. Tuning: Press these buttons to tune a source to its component or composite video output, and make a separate audio connection. Video 1 Audio/Video Outputs: These jacks may be used to connect your DVR, VCR or another recorder. HDMI Inputs and Output:

HDMI (High-Definition Multimedia Interface) is a connection for transmitting digital audio and video signals between devices.

Connect up to three HDMI-equipped source devices to the HDMI inputs using a single-cable connection. When you connect the HDMI Output to your video display, the AVR 160 will automatically transcode component video source signals to the HDMI format, but they will be passed through at the original resolution and will not be scaled. The AVR's on-screen menus are visible when the HDMI Output is used, but only at 576i resolution. The main video source will not be visible. NOTES: When connecting a DVI-equipped display to one of the HDMI Outputs: · Use an HDMI-to-DVI adapter. · Make sure the display is HDCP-compliant. If it isn't, do not connect it to an HDMI Output; use an analog video connection instead. · Always make a separate audio connection. 9 ENGLISH REAR-PANEL CONNECTIONS AC Power Cord: After you have made all other connections, plug the AC power cord into this receptacle and into an unswitched wall outlet. Main Power Switch: This mechanical switch turns the power supply on or off.

It is usually left on, and cannot be turned on or off using the remote control. Coaxial 1&2 and Optical 1&2 Digital Audio Inputs: If a source has a compatible digital audio output, and if you are not using an HDMI connection for audio for the device, connect it to one of these jacks to hear digital audio formats, such as Dolby Digital, DTS and linear PCM. Use only one type of digital audio connection for each source. Coaxial Digital Audio Output: If a source is also an audio recorder, connect one of the Digital Audio Outputs to the recorder's matching input for improved recording quality.



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Only PCM digital audio signals are available for recording. Both coaxial and optical digital audio signals are available at either Digital Audio Output. Front, Center Surround and Surround Back Speaker Outputs: Use two-conductor speaker wire to connect each set of terminals to the correct speaker. Remember to observe the correct polarity (positive and negative connections). 6-/8-Channel Inputs: Connect the multichannel analog audio outputs of a non-HDMI player (DVD-Audio, SACDTM, Blu-ray DiscTM or HD-DVD, or any other external decoder) to these jacks. See page 25 for more information. CD and Tape Audio Inputs: These jacks may be used to connect audio-only source components (e.g., CD player, tape deck). Do not connect a turntable to these jacks unless you are using it with a phono preamp. Tape Outputs: These jacks may be used to connect a CDR or another audio-only recorder. Subwoofer Output: If you have a powered subwoofer with a line-level input, connect it to the Subwoofer Output. AUX Input: Enjoy audio from an iPod (not included), CD player or other portable player by connecting its headphone jack to this input using a 1/8" (3,5 mm) stereo mini-plug cable (not included).

Video and still-image playback are not available at this input. 10 REMOTE CONTROL FUNCTIONS IR Transmitter Lens Device Power On Program Indicator AVR Selector AM/FM 6-/8-Channel Input Selector Volume Channel Controls On-Screen Display Channel Level TV/Video Speaker Setup KLM N Navigation Mute Device Power Off Source Selectors Test Tone Sleep OK Digital Input Delay Alphanumeric Keys Tuning Mode Direct Station Entry Tuning Tone Mode Memory Clear Preset Stations Selectors RDS Button Macros Night Mode Track Skip Transport Controls Dim The AVR 160 remote is capable of controlling up to 11 devices, including the AVR itself and a device connected to the Auxiliary Input. During the installation process, you may program the codes for each of your source components into the remote.

Each time you wish to operate any component or the AVR, first press its Selector Button to change the device mode to the appropriate codes. Each Source Selector has been preprogrammed to control certain types of components, with only the codes specific to each brand and model changing, depending on which product code is programmed. The device types programmed into each selector, except the HDMI selectors, may not be changed. DVD: Controls Harman Kardon Blu-ray Disc players, and many brands of DVD players and recorders. CD: Controls CD players and recorders. Tape: Controls cassette decks. Video 1: Controls VCRs, TiVo® devices and DVRs, and the Harman Kardon DMC 1000 digital media center. Video 2: Controls cable and satellite television set-top boxes. Video 3: Controls televisions and other video displays. HDMI 1: Controls Harman Kardon Blu-ray Disc players, and many brands of DVD players and recorders.

11 ENGLISH REMOTE CONTROL FUNCTIONS HDMI 2 and 3: Each code set controls a source device (VCR/PVR, DVD player or cable/satellite set-top box) connected to one of these inputs. AUX: Controls a device connected to the Auxiliary Input. Any given button may have different functions, depending on which component is being controlled. Some buttons are labeled with these functions. For example, the Sleep Button is labeled for use as the Channel Up Button when controlling a television or cable box. See Table A10 in the appendix for listings of the different functions for each type of component. IR Transmitter Lens: As buttons are pressed on the remote, infrared codes are emitted through this lens. Power On Button: Press this button to turn on the AVR or another device. The Main Power Switch must first have been switched on. Mute Button: Press to mute the AVR 160's speaker and headphone outputs. To end the muting, press this button, adjust the volume, or turn off the receiver. Program Indicator: This LED lights up or flashes in one of three colors as the remote is programmed with codes. Power Off Button: Press to turn off the AVR 160 or another device. AVR Selector: Press to switch the remote to AVR device mode. Source Selectors: Press one of these buttons to select a source device, e.g., DVD, CD, cable TV, satellite or HDTV tuner. This will also turn on the receiver and switch the remote's device mode to operate the source. AM/FM Button: Press this button to select the tuner as the source, or to switch between the AM and FM bands. 6-/8-Channel Input Selector: Press this button to select the 6-/8-Channel Inputs as the audio source.

If a signal is present at the component video inputs assigned to this source, it will be used. If not, the receiver will use the video input and remote control codes for the lastselected analog video source. Test Tone: Press this button to activate the test tone for manual outputlevel calibration. TV/Video: This button has no effect on the receiver, but is used to switch video inputs on some video source components. Sleep Button: Press this button to activate the sleep timer, which turns off the receiver after a programmed period of time of up to 90 minutes. Channel Controls: These buttons have no effect on the receiver, but are used to change channels on TVs and some video sources. NOTE: The Channel Level, Speaker Setup, Digital Input Select and Delay functions may also be adjusted using the OSD on-screen menus. In addition, the EzSet/EQ system may be used to adjust the Channel Level, Speaker Setup and Delay settings automatically. Numeric Keys: Use these buttons to enter radio station frequencies or to select station presets. Press the Direct Button before entering the station frequency.

Tuning Mode: This button toggles between manual (one frequency step at a time) and automatic (seeks frequencies with acceptable signal strength) tuning mode. It also toggles between stereo and mono modes when an FM station is tuned. Memory: After you have tuned a particular radio station, press this button, then the Numeric Keys, to save that station as a radio preset. Tuning: Press these buttons to tune a radio station. Depending on whether the tuning mode has been set to manual or automatic, each press will either change one frequency step at a time, or seek the next frequency with acceptable signal strength. Volume Control: Press to raise or lower the volume, which will be shown in decibels (dB) in the Message Display. On-Screen Display (OSD): Press this button to activate the on-screen menu system. Channel Level: Press this button to adjust the output levels for any channel so that all speakers sound equally loud at the listening position. Speaker Setup: Press this button to configure speaker sizes, that is, the low-frequency capability of each speaker. Navigation (KLM N) and OK Buttons: These buttons are used to make selections within the on-screen menu system, or when accessing the functions of the four buttons surrounding this area of the remote Channel Level, Speaker Setup, Digital Input or Delay.

Digital Input Select: Press this button to select the specific digital audio input (or analog audio input) to which the current source is connected.



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Delay: Press this button to set delay times that compensate for placing the speakers at different distances from the listening position, or to resolve a "lip sync" issue that may be caused by digital video processing. **12 REMOTE CONTROL FUNCTIONS** *Direct:* Press this button before using the Numeric Keys to directly enter a radio station frequency. *Clear:* Press this button to clear a radio station frequency you have started to enter. *Preset Stations Selector:* Press these buttons to select a preset radio station.

Tone Mode: Press this button to access the tone controls (bass and treble). Use the Navigation Buttons to make your selections. *RDS:* Activates RDS functions for FM Radio *Macros:* These buttons may be programmed to execute long command sequences with a single button press. They are useful for programming the command to turn on or off all of your components, or for accessing specialized functions for a different component than you are currently operating. *Night Mode:* Press this button to activate Night mode with specially encoded Dolby Digital discs or broadcasts.

Night mode compresses the audio so that louder passages are reduced in volume to avoid disturbing others, while dialogue remains intelligible. *Track Skip:* These buttons have no effect on the receiver, but are used with many source components to change tracks or chapters. *Dim:* Press this button to partially or fully dim the front-panel display. *Transport Controls:* These buttons have no effect on the receiver, but are used to control many source components. By default, when the remote is operating the receiver, these buttons will control a Harman Kardon Blu-ray Disc player or a DVD player. **ENGLISH** 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. **13 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. **INTRODUCTION TO HOME THEATER** This introductory section will help you to familiarize yourself with some basic concepts unique to multichannel surround sound receivers, which will make setup and operation smoother. *Surround modes* There are different theories as to the best way to present surround sound and to distribute information to the speakers. A variety of algorithms have been developed in an effort to reproduce the way we hear sounds in the real world, resulting in a rich variety of options. Several companies have taken surround sound in different directions: · *Dolby Laboratories* Dolby TrueHD, Dolby Digital Plus, Dolby Digital, Dolby Digital EX, Dolby Pro Logic II and IIx · *DTS* DTS-HD High Resolution Audio, DTS-HD Master Audio, DTS, DTS-ES (Discrete and Matrix), DTS Neo:6, DTS 96/24 · *Harman International* (the Harman Kardon parent company) Logic 7, Harman Virtual Speaker, Harman Headphone · *Stereo Modes* Generic modes that expand upon conventional 2-channel stereo, including 5- and 7-channel stereo Table A9 in the appendix contains detailed explanations of the mode groups and the mode options available within each group.

Digital modes, such as Dolby Digital and DTS, are only available with specially encoded programs, such as HDTV, Blu-ray Disc media and digital cable or satellite television. Other modes may be used with digital and analog signals to create a different surround presentation, or to use a different number of speakers. Surround Mode selection depends upon the number of speakers in your system, the materials you are watching or listening to, and your personal tastes. typical Home theater System A home theater typically includes an audio/video receiver, which controls the system; a disc player; a source component for television broadcasts (cable box, satellite dish receiver, HDTV tuner or antenna connected to the TV); a video display (television); and loudspeakers.

multichannel audio The main benefit of a home theater system is the placement of loudspeakers around the room to produce "surround sound."

Surround sound immerses you in the presentation for increased realism. The AVR 160 may have up to seven speakers connected directly to it plus a subwoofer. Each main speaker is powered by its own amplifier channel inside the receiver. A system with more than two speakers is called a multichannel system. · *Front Left and Right* The main speakers are used as in a 2-channel system.

In many surround modes, these speakers are secondary, while the main action, especially dialogue, is moved to the center speaker. · *Center* The center speaker is used for dialogue in movies and television programs, allowing the dialogue to originate near the actors' faces, for a more natural sound. ·

Surround Left and Right The surround speakers improve directionality of ambient sounds. In addition, more loudspeakers play dynamic soundtracks without risk of overloading any one speaker. · *Surround Back Left and Right* Additional surround speakers may be placed behind the listening position, improving the precision of ambient sounds and allowing for more realistic pans. The surround back speakers are used with surround modes designed for 7.1-channel systems, such as Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, DTS-ES (Discrete and Matrix), DTS-HD High Resolution Audio, DTS-HD Master Audio and Logic 7 (7.1 modes). The surround back speakers are optional, and the AVR 160 may be set up with a 5.1-channel system in the main listening area.

Many people expect the surround speakers to play as loudly as the front speakers. Although all of the speakers in the system will be calibrated to sound equally loud at the listening position, most artists use the surround speakers for ambient effects only, and they program their materials to steer very little sound to these speakers.



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Subwoofer A subwoofer is designed to play only the lowest frequencies (the bass). It augments smaller, limited-range satellite speakers used for the other channels. Many digital-format programs, such as movies recorded in Dolby Digital, contain a low-frequency effects (LFE) channel which is directed to the subwoofer. The LFE channel packs the punch of a rumbling train or airplane, or the power of an explosion, adding realism and excitement to your home theater. Some people use two subwoofers, for additional power and even distribution of the sound. **14 CONNECTIONS** There are different types of audio and video connections used to connect the receiver, the speakers, the video display, and the source devices. The Consumer Electronics Association has established the CEA® color-coding standard. Some of these connectors are not used on the AVR 160, although they may be found on other components in your system.

See Table 1. **Subwoofer** The subwoofer is dedicated to the low frequencies (bass), which require more power. To obtain the best results, most speaker manufacturers offer powered subwoofers that contain their own amplifier. Usually, a line-level (nonamplified) connection is made from the receiver's Subwoofer Output to a corresponding jack on the subwoofer, as shown in Figure 3. Although the purple subwoofer outputs look similar to full-range analog audio jacks, they are filtered to allow only the low frequencies to pass.

Don't connect these outputs to any other devices. **ENGLISH 15 Table 1 Connection Color Guide** Audio Connections Front (FL/FR) Center (C) Surround (SL/SR) Surround Back (SBL/SBR) Subwoofer (SUB) Digital Audio Connections Coaxial Optical Video Connections Component Composite HDMITM Connections (digital audio/video) HDMI Y Green Pb Blue Yellow Pr Red Input Orange Output Blue Brown Purple Left White Green Gray Tan Right Red Preout Subwoofer **Figure 3** Subwoofer connectInG Source DeViceS to tHe aVr Audio and video signals originate in "source devices," including your Blu-ray Disc or DVD player, CD player, DVR (digital video recorder) or other recorder, tape deck, game console, cable or satellite television box, MP3 player, USB drive or network device. The AVR's tuner also counts as a source, even though no external connections are needed, other than the FM and AM antennas. Separate connections are required for the audio and video portions of the signal, except for digital HDMI connections. The types of connections used depend upon the capabilities of the source device and video display.

Figure 1 Speaker connections Speaker cables carry an amplified signal from the receiver's speaker terminals to each loudspeaker. They contain two wire conductors, or leads, inside plastic insulation, that are differentiated in some way, such as with colors or stripes. The differentiation preserves polarity, without which low-frequency performance can suffer. Each speaker is connected to the receiver's speakeroutput terminals using two wires, one positive (+) and one negative (-). Always connect the positive terminal on the speaker, which is usually colored red, to the positive terminal on the receiver, which is colored as indicated in the Connection Color Guide above (Table 1). The negative terminals are both black Bare wire cables are installed as follows (see **Figure 2**): 1. Unscrew the terminal cap until the pass-through hole is revealed. 2. Insert the bare end of the wire into the hole. 3.

Hand-tighten the cap until the wire is held snugly. **audio connections** There are two types of audio connections: digital and analog. Digital audio signals are required for listening to sources encoded with digital surround modes, such as Dolby Digital and DTS, or for noncompressed PCM digital audio. There are three types of digital audio connections: HDMI, coaxial and optical. Do not use more than one type of digital audio connection for each source device.

However, it's okay to make both analog and digital audio connections to the same source. **NOTE:** HDMI signals may carry both audio and video. If your video display device has an HDMI input, make a single HDMI connection from each source device to the AVR. Usually, a separate digital audio connection is not required. Turn the volume on your television all the way down.

Figure 2 Binding-Post Speaker Terminals With Bare Wires **CONNECTIONS** Digital audio The AVR 160 is equipped with three HDMI (High-Definition Multimedia Interface) inputs, and one output. HDMI technology enables digital audio and video information to be carried using a single cable, delivering the highest quality picture and sound. The AVR 160 uses HDMI (V.1.3a with Deep Color) technology and is capable of processing both the audio and video components of the HDMI data, minimizing the number of cable connections in your system.

The AVR 160 implements Deep Color, which increases by an order of magnitude the shades of color that can be displayed, and the latest lossless multichannel audio formats, including Dolby TrueHD and DTS-HD Master Audio. **NOTE:** Some DVD-Audio, SACD, Blu-ray Disc and HD-DVD players only output multichannel audio through their multichannel analog outputs. Make a separate analog audio connection in addition to the HDMI connection, which is still used for video and to listen to Dolby Digital, DTS or PCM materials that may be stored on the disc. The AVR 160 converts component video signals to the HDMI format, including its on-screen menus, but outputs them at their native resolution. The HDMI connector is shaped for easy plug-in (see **Figure 4**).

If your video display has a DVI input and is HDCP-compliant, use an HDMI-to-DVI adapter (not included). A separate audio connection is required. HDMI cable runs are limited to about 3 meter. **analog audio** Analog connections require two cables, one for the left channel (white) and one for the right channel (red). These two cables are often attached to each other. See **Figure 7**. For sources that are capable of both digital and analog audio, you may make both connections. You may only record materials from DVDs or other copy-protected sources using analog connections. Remember to comply with all copyright laws, if you choose to make a copy for your own personal use. **Analog audio cable (RCA) L R** **Figure 7** Analog Audio The 6-/8-Channel Inputs are multichannel analog connections that are used with high-definition sources that decode the copy-protected digital content, such as some DVD-Audio, SACD,

Blu-ray Disc and HD-DVD players.

See **Figure 8**. The multichannel analog audio connection is not required for players compliant with HDMI version 1.1 or better, or that output linear PCM signals via an HDMI connection. Consult the owner's guide for your disc player for more information, and see page 25. **Front Multichannel analog audio cable (RCA) White Surround Blue Center Green Subwoofer Red Gray Purple** **Figure 4** HDMI Connection If your video display or source device is not HDMI-capable, use one of the analog video connections (composite or component video) and a separate audio connection.



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Coaxial digital audio jacks are usually color-coded in orange. Although they look similar to analog jacks, you should not connect coaxial digital audio outputs to analog inputs or vice versa. See Figure 5. Coaxial digital audio cable Coaxial Figure 8 Multichannel Analog Audio The AVR 160 has an Auxiliary Audio Input on the rear panel in the form of a stereo 1/8" (3,5 mm) mini jack. Connect the headphone output of any audio source, such as an MP3 player or portable CD player, to the Auxiliary Audio Input.

See Figure 9. Figure 5 Coaxial Digital Audio Optical digital audio connectors are normally covered by a shutter to protect them from dust. The shutter opens as the cable is inserted. Input connectors are color-coded using a black shutter, while outputs use a gray shutter. See Figure 6.

Optical digital audio cable Optical Figure 9 Auxiliary Audio Input Figure 6 Optical Digital Audio 16 CONNECTIONS Video connections Many sources output both audio and video signals (e.g., Blu-ray Disc or DVD player, cable television box, HDTV tuner, satellite box, VCR, DVR). In addition to the audio connection, make one type of video connection for each of these sources (only one at a time for any source). antennaS The AVR 160 uses separate terminals for the included FM and AM antennas.

The FM antenna uses a 75-ohm F-connector. See Figure 12. Digital Video If you have already connected a source device to one of the HDMI inputs, you have automatically made a video connection, as the HDMI signal includes both digital audio and video components. Figure 12 FM Antenna There are two types of analog video connections: composite video and component video. Composite video is the basic connection most commonly available. The jack is usually color-coded yellow, and looks like an analog audio jack. Do not plug a composite video cable into an analog or coaxial digital audio jack, or vice versa. Both the chrominance (color) and luminance (intensity) components of the video signal are transmitted using a single cable. See Figure 10. Composite video cable Figure 13 AM Antenna Figure 10 Composite Video uSB port The USB Port on the AVR 160 is used only for software upgrades.

If an upgrade for the receiver's operating system is released in the future, it may be downloaded to the AVR using this port. Complete instructions will be provided at that time. Component video separates the video signal into three components one luminance ("Y") and two sub-sampled color signals ("Pb" and "Pr") that are transmitted using three separate cables. See Figure 11. Y Component video cable Green Pb Blue Pr Red Figure 11 Component Video If it's available on your video display, an HDMI connection is recommended as the best quality connection, followed by component video and then composite video. NOTE: HDCP-copy-protected sources are not available at the Component Video Monitor Outputs. 17 ENGLISH Analog Video The AM loop antenna needs to be assembled. Connect the two leads to the spring terminals on the receiver. The AM antenna leads have no polarity, and you may connect them to either terminal. See Figure 13.

SPEAKER PLACEMENT Optimally, the speakers should be placed in a circle with the listening position at its center. The speakers should be angled so that they directly face the listening position. Green Purple White SUB 1 C FR Red 30° 30° front Speaker placement The center speaker is placed either on top of, below or mounted on the wall above or below the video display screen. The front left and right speakers are placed along the circle, about 30 degrees from the center speaker and angled toward the listener. Place the front left/right and center speakers at the same height, preferably at about the same height as the listener's ears.

The center speaker should be no more than approx. 60 cm above or below the left/right speakers. If you're using only two speakers with the AVR 160, place them in the front left and right positions. Placement of the surround speakers depends on the number of speakers in your system. Green Purple White SUB 1 FL 90° 150° 150° 90° SL SR Blue Gray Brown SBL SBR Tan C FR Red 30° 30° FL Figure 15 Speaker Placement (7.

1- Channel System) 110° 150° 150° 110° NOTE: Some speaker manufacturers offer 6.1-channel speaker systems, for 6.1-channel surround sound formats, such as Dolby Digital EX, DTS-ES Discrete and Matrix modes and DTS Neo:6 mode. Using the AVR 160 in a 6.1-channel configuration is not recommended. The 6.1-channel formats will sound better when played through a 7.1-channel system. The same surround back channel information is played through both surround back speakers, but with twice the power and clarity. To use the AVR 160 with a 6.

1-channel speaker system, place the single surround back speaker directly behind the listener, but do not connect it until after you have run the EzSet/EQ procedure for a 5.1-channel system. After the EzSet/EQ process finishes, connect the surround back speaker to the Surround Back Left Speaker Output. Then follow the directions in the Advanced Features section for manual setup of the surround back speaker. SL SR Blue Gray Alternate placement for Side Surround Left Speaker (Blue) Alternate placement for Side Surround Right Speaker (Gray) Subwoofer placement Placement of the subwoofers is less critical, since low-frequency sounds are omnidirectional. Placing each subwoofer close to a wall or in a corner will reinforce the low frequencies, and may create a "boomy" sound. Temporarily place one subwoofer where the listener normally sits, then walk around the room until the low frequencies sound best. Place the subwoofer in that spot. NOTE: Your receiver will sound its best when the same model or brand loudspeaker is used for all positions. Figure 14 Speaker Placement (5.

1- Channel System) placement of Surround Speakers in a 5.1- channel System The side surround speakers should be placed 110 degrees from the center speaker, slightly behind and angled toward the listener. Alternatively, place them behind the listener, with each surround speaker facing the oppositeside front speaker. See Figure 14. The surround speakers may be placed a little higher than the listener's ears.

placement of Surround Speakers in a 7.1- channel System In a 7.1- channel system, the side surround speakers are placed 90 degrees from the center speaker, directly to either side of the listening position. The surround back left and right speakers are placed 150 degrees from the center speaker, or directly facing the opposite-side front speaker. See Figure 15.

18 GETTING STARTED Installing the AVR 160 and connecting it to the other system components can be complex. To simplify installation, it is suggested that you design your system before you begin connecting wires and cables.



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Although the rear-panel jacks allow for a variety of audio and video connections to other components, the AVR's software organizes the connections into 6 conventional sources: DVD (Blu-ray Disc player or DVD player), CD, Tape (audio recorder), Video 1 (VCR), Video 2 (Cable/Sat) and Video 3 (TV). Each of these sources uses dedicated analog audio inputs, and the DVD and Video 1/2/3 sources also use dedicated composite video inputs. The AVR 160 also features six digital audio inputs (two each coaxial and optical on the rear panel, and one of each type on the front panel). The digital audio inputs, which offer improved performance when available on the source device, may be assigned to any source, as explained in the Initial Setup section. The two component video inputs offer improved video performance when available on the source device and video display, and may also be assigned to any source. The 6-/8-Channel Analog Audio Inputs are selected as a separate source, but may only be used with one of the two component video inputs. For superior audio and video performance, the AVR 160 is equipped with three dedicated HDMI inputs, which may be used with any type of source device that has an HDMI output. The HDMI inputs may be used with an analog or digital audio input or one of the component video inputs.

This flexibility facilitates using the AVR with sources that do not output multichannel audio through their HDMI outputs. Table A1 in the appendix indicates the default device types for each source, and the default audio/video connection assignments. If the defaults suit your system, then connect your devices to the audio/video inputs shown. Otherwise, design your system as explained below. 1. Best video connection type for your system: Examine the video inputs on your TV or video display. Write down the best available video connection type here: _____. The options, in order of preference, are: HDMI, DVI (must be HDCP-compliant), component video or composite video. This is the "systembest" video connection for your system. 2.

Decide which source will be used for each device: Match up to 6 devices to the 6 conventional sources listed in the Table 2 worksheet below. Any source device with compatible output connectors may be connected to any source inputs on the AVR. Matching the source devices to the named sources simplifies setup and programming the remote control. It is recommended that you match source devices as follows: · DVD: DVD, VCR/PVR/DMC, Cable/Satellite · VIDEO 1: VCR, PVR (such as TiVo), DVD recorder · VIDEO 2: Cable or satellite set-top box · CD: CD player · TAPE: Cassette deck or audio recorder (remote may only operate Harman Kardon cassette decks) · HDMI 1: Blu-ray Disc player or DVD player (remote may only operate Harman Kardon Blu-ray Disc players, or many brands of DVD players) · HDMI 2 or 3: Any device equipped with an HDMI output; the device type is selected from one of the other options while programming the remote · AUX: Portable audio player (remote is not programmable to operate this device) 3. Best video connection for each source: Examine each source device and write down the best available type of video connection, but not better than the system-best connection.

Leave blank audio-only sources, such as a CD player. 4. Best audio connection for each source: For each source device, write down the best available type of audio connection. See the note below, and if the HDMI connection may be used for audio, it is the best option. The other options, in order of preference, are: optical digital audio, coaxial digital audio, 2-channel analog audio.

If you select an HDMI input, that becomes the AVR source for the device. If you select a 2-channel analog audio input, that input becomes the AVR source. The digital audio inputs will be assigned to a source during Initial Setup. ENGLISH · VIDEO 3: TV (video display) or HDTV set-top box table 2 Source assignment Worksheet Best Video Connection (HDMI, DVI, Component, Composite) Best Audio Connection (HDMI, Optical, Coaxial, 2-Ch Analog) Audio Input Assigned (may be one digital plus one or more analog) Source Video 1 Video 2 Video 3 DVD CD Tape AUX HDMI 1 HDMI 2 HDMI 3 6-/8-CH Device Type VCR Cable or Sat TV DVD CD Cassette deck Portable player Blu-ray Disc or DVD Video Input Assigned Analog Audio Input for Recording 19

GETTING STARTED NOTES: · For multichannel disc players, if both the device and the TV use HDMI connections for video, then check the owner's manual for the device to determine whether it transmits multichannel audio via its HDMI output. If it does, then no separate audio connection is required. If not, write down the multichannel analog audio connection in addition to any other audio type. An analog video connection, in addition to the HDMI connection, will be required. See page 25 for more information. · If the device uses an HDCP-compliant DVI output for video, then connect it to one of the AVR's HDMI Inputs using an HDMI-to-DVI adapter, but a separate audio connection will always be required. · The AUX Input jack on the rear panel requires a 1/8" (3,5 mm) stereo audio mini-plug.

Purchase a stereo audio cable with 1/8" (3,5 mm) mini-plugs at both ends. Connect one end to the 1/8" (3,5 mm) headphone jack found on many portable audio players, and plug the other end of the cable into the AUX Input jack. The AUX Input may also be used with audio devices that have conventional left and right analog audio output jacks. Purchase a cable that has left and right "RCA-style" plugs at one end and a 1/8" (3,5 mm) mini-plug at the other end to connect the player to the AUX Input. 5. Decide which sources to connect to each of the video inputs: Assign only one unique video input to each source. Use the best type of video connection available for each source. · If your system-best video connection is "HDMI", select up to four HDMI source devices and assign them to one of the three numbered HDMI sources. · If your system-best video connection is "Component", or if you have source devices with component video outputs that weren't assigned to one of the HDMI Inputs, assign up to three devices to one of the three numbered Component Video Inputs. · If your system-best video connection is "Composite Video", or if you have source devices with composite video outputs that have not been assigned to any other video input, then assign the devices to one of the four conventional sources (DVD, Video 1, 2 or 3).

The composite video inputs are dedicated to each source and may not be reassigned. Use the composite video input for the source you assigned to the device in number 2 above. NOTE: If the source device is a video recorder that will be used to record from other devices connected to the AVR, assign the recorder to the Video 1 Input, which has a recording output.



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Any of the Coaxial or Optical Digital Inputs may be assigned to the recorder for audio, if it is capable of making digital audio recordings. To make audio-only recordings, assign the Tape source to the recorder.

It is not necessary to connect TiVo or Video Recorder devices that will only record from their direct cable or satellite television signals to the AVR's recording outputs. 6. Decide which audio inputs to connect to each source: Assign only one unique digital audio input to each digital source. Analog audio inputs are used for analog sources, or as secondary connections for digital sources for backup or for recording. The 2-channel analog audio inputs are dedicated to the four conventional sources (DVD, Video 1, 2 or 3) and may not be reassigned.

Use the 2-channel analog audio input for the source you assigned to the device in number 2 above. · Any source using an HDMI Input requires no additional connection for audio unless: The source doesn't output multichannel audio through its HDMI output. Make a second connection to the 6-/8-Channel Analog Audio Inputs. The source has an HDCP-compliant DVI output for video only. Assign a digital or analog audio input. · For any source whose best audio connection is optical or coaxial digital audio, assign one of the three Optical or three Coaxial Digital Audio Inputs. Do not connect both types of digital audio to the same source device. · You may assign one of the 2-Channel Analog Audio Inputs to a digital source. · You may also assign the 6-/8-Channel Analog Audio Inputs, if available, to a digital source. See page 25.

· Use the 2-channel Analog Audio Input for the source selected for the device in number 2 above when the device is an analog source. NOTE: If the source device is a digital audio recorder, it may be used with any of the Coaxial or Optical Digital Audio Inputs and the Coaxial Digital Audio Output. Both coaxial and optical signals are available at either digital audio output. To make analog recordings, assign either the Analog 2 or 4 Audio Inputs to the recorder, as both have recording outputs. 20 INSTALLATION You are now ready to begin installing the AVR. Before beginning to connect the various components to the receiver, turn off all devices, including the AVR 160, and unplug their power cords. Don't plug in any of the power cords until you have finished making all of your connections. The receiver generates heat. Select a location that leaves several centimeters of space on all sides. Avoid completely enclosing the receiver inside an unventilated cabinet.

Place components on separate shelves rather than stacking them directly on top of the receiver. Never block the AVR's ventilation slots on the top and side panels. Doing so could cause the AVR to overheat, with potentially serious consequences. Some shelf surface finishes are delicate. Try to select a location with a sturdy surface finish.

Almost all of the following installation steps are optional, depending on your system. Skip any step that does not apply to your system. Step fIVE connect an antenna Assemble the included AM antenna (see Figure 16) and connect it to the AM and Ground antenna terminals. The antenna is not polarized, and either lead may be connected to either terminal. Figure 16 AM Antenna Assembly Step one connect Source Devices Leaving all AC power cords unplugged, connect the source devices to the AVR using the audio and video inputs you assigned in Table 2.

Step SIX plug in ac power cords Before plugging the AVR into an unswitched electrical outlet, make sure the Main Power Switch behind the front-panel door is off, to prevent the possibility of damaging the AVR in case of a transient power surge. Plug the AC Power cord into an unswitched AC outlet. It is recommended that you copy the appropriate information from the Table 2 worksheet to Table A5 in the appendix for future reference, in the event changes are made to the system components. Step tWo connect tV Connect the system-best video input on the TV to the corresponding video monitor output on the AVR. If

your video display or source device is not HDMI-capable, you will need to use one of the analog video connections (composite or component video). Step SeVen Insert Batteries in remote The AVR 160 remote control uses three AAA batteries (included). To remove the battery cover located on the back of the remote, firmly press the ridged depression and slide the cover toward the top of the remote. Insert the batteries as shown in Figure 17, observing the correct polarity. Step tHree connect Loudspeakers After you have placed your loudspeakers in the room as explained on page 18, connect each speaker to its color-coded terminal on the AVR. Maintain proper polarity by connecting the negative terminal on the speaker (usually colored black) to the negative terminal on the AVR (also colored black); and the positive terminal on the speaker (usually red) to the positive terminal on the AVR (color varies by channel; see Table 1 on page 15).

If you have a subwoofer, connect its line-level or LFE input to the purple Subwoofer Output. NOTE: If the subwoofer only has speaker-level inputs, after you have configured the AVR using EzSet/EQ technology as described on page 23, connect the subwoofer's left and right speaker input terminals to the AVR's Front Left and Front Right Speaker Outputs, then connect the front left and right main speakers to the subwoofer's left and right speaker output terminals. Consult the owner's manual for the subwoofer for specific installation instructions. Figure 17 Remote Battery Compartment Step four connect fm antenna Connect the included FM antenna to the 75-ohm FM antenna terminal. Point the remote's lens toward the front panel of the AVR 160. Make sure no objects, such as furniture, are blocking the remote's path to the receiver. Bright lights, fluorescent lights and plasma video displays may interfere with the remote's functioning. The remote has a range of about 7 meter, depending on the lighting conditions. It may be used at an angle of up to 30 degrees to either side of the AVR. If the remote seems to operate intermittently, or if pressing a button on the remote does not cause the AVR Settings Button or one of the Source Selectors to light, check or replace the batteries.

21 ENGLISH INSTALLATION Step eIGHt program Sources Into the remote The AVR 160 remote may be programmed to control many brands and models of DVD players, cable boxes, satellite receivers, the Harman Kardon DMC 1000 digital media center and TVs. To access the functions for a particular device, switch the remote's device mode. Press the AVR Button to access the codes that control the receiver, or the Source Selector Buttons to access the codes for the devices programmed into the remote. While the DVD Source Selector may be used to operate either a Harman Kardon Blu-ray Disc player or a DVD player, the default mode is to operate a Harman Kardon Blu-ray Disc player.



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To toggle between Harman Kardon Blu-ray Disc player and DVD player operation, press and hold the DVD Source Selector for 2 seconds. The source selector will flash twice to confirm that the remote's mode has changed to operate the other type of disc player. NOTE: The remote may be easily programmed to operate the Harman Kardon DVD players using the Video 1 or any of the HDMI Input Selectors, by following the instructions below. Select the VCR/PVR/DMC device type in number 4. Enter code 002. If you have other source devices in your system, follow these steps to program the correct codes into the remote.

1. Using the codes in Tables A11A17 of the Appendix, look up the product type (e.g., DVD, cable TV box) and the brand name of your source. The number(s) listed is/are potential candidates for the correct code set for your particular device. 2. Turn on your source device. 3. This step places the remote in program mode. Press and hold the Source Selector until the Program Indicator LED on the remote starts to flash, then release it.

When pressed, the Source Selector will light red briefly, go dark, and then relight when the Program Indicator LED starts to flash. 4. Program the desired device type for any of the three HDMI selectors by pressing the corresponding Source Selector: · Press DVD to operate a DVD player. · Press VID1 to operate a VCR or PVR, or a Harman Kardon digital media center. · Press VID2 to operate a cable or satellite set-top box. 5. Enter a code from number 1 above. a) If the device turns off, then press the Source Selector again to accept the code; it will flash. The remote will exit the Program mode. b) If the device does not turn off, try entering another code.

If you run out of codes, you may search through all of the codes in the remote's library for that product type by pressing the K or L Button repeatedly until the device turns off. When the device turns off, enter the code by pressing the Source Selector; it will flash. The remote then exits Program mode. 6. Once you have programmed a code, try using some other functions to control the device.

Sometimes manufacturers use the same Power code for several different models, while other codes vary. Repeat this process until you've programmed a satisfactory code set that operates most of the functions you frequently use. 7. Find out which code number you have programmed by pressing and holding the Source Selector to enter the Program mode. Press the OK Button, and the Program Indicator LED will flash in the code sequence.

One flash represents "1", two flashes for "2", and so forth. A series of many fast flashes represents "0". Record the codes programmed for each device in Table A7 in the Appendix. If you are unable to locate a code set that correctly operates your source device, it will not be possible to use the AVR remote to control that device. You may still connect the source to the AVR 160 and operate it using the device's original remote control. Most of the button labels on the remote describe the button's function when used to control the AVR 160. However, the button may perform a very different function when used to control another device. Refer to the Remote Control Function List, Table A10 in the Appendix, for each button's functions with the various product types. You may program Macros, which are preprogrammed code sequences that execute many code commands with a single button press. You may also program "punch-through" codes, which allow the remote to operate the volume, channel or transport controls of another device without having to switch the remote's device mode.

See pages 35 through 36 for instructions on these advanced programming functions. Note: The AVR 160 remote is preprogrammed to operate the transport controls of Harman Kardon Blu-ray Disc or DVD players when the AVR or the Video 2 (cable/satellite) or Video 3 (TV) source is selected. You may change this punch-through programming at any time. Step nIne turn on the aVr 160 Two steps are required the first time you turn on the AVR 160. 1. Flip the rear-panel Main Power Switch to the "On" position. The Power Indicator on the front panel will turn amber, indicating that the AVR is in Standby mode and is ready to be turned on. Normally, you may leave the Main Power Switch on, even when the receiver is not being used. 2. There are several ways to turn on the AVR from Standby mode.

a) Press the Standby/On Switch on the front panel. b) Using the remote, press the AVR Power On Button or any of the Source Selectors. NOTES: · Any time you press one of the Source Selectors on the remote, the remote will switch device modes. To control the receiver, press the AVR Button. · If you do not see a picture within about 1 minute, refer to the Video Troubleshooting Tips on page 27.

22 INITIAL SETUP In this section, you will configure the AVR 160 to match your actual system. A video display must be connected to one of the video monitor outputs on the receiver. uSInG tHe on-Screen menu SyStEM Although it's possible to configure the AVR using only the remote and the front-panel messages, it is easier to use the full-screen menu system. The menu system is accessed by pressing the OSD Button on the remote or front panel. The Master menu will appear (see Figure 18).

Step one Place the included EzSet/EQ microphone in the listening position or in the center of the room, at about the same height as the listeners' ears. The microphone features a threaded insert on the bottom, for mounting on the extension rod or a camera tripod. Step tWo Plug the EzSet/EQ microphone into the EzSet/EQ Microphone Input Jack on the front of the receiver, and set the level control on the subwoofer to the halfway point. Step tHree Turn on the AVR 160 and the video display. Press the OSD Button to display the Master menu. Use the L Button to highlight the EZSET/EQ LINE, then press the OK Button. See Figure 19. ENGLISH Figure 18 Master Menu Figure 19 EzSet/EQ Screen The Master menu consists of five submenus: Input Setup, Surround Select, EzSet/EQ, Manual Setup and System Setup. Use the KLM N Buttons on the remote or front panel to navigate the menu system, and press the OK Button to select a menu or setting line, or to enter a new setting. The current menu, setting line or setting will appear in the Message Display, as well as on screen.

To return to the previous menu, navigate to the "BACK TO MASTER MENU" line and press the OK Button. To exit the menu system, press the OSD Button.

@@@ Instead, proceed as described in the Advanced Functions section. @@The 6.1-channel configuration is not recommended. @@The AVR 160 will automatically set its master volume to 25dB. @@@@ Avoid making any loud noises while running EzSet/EQ setup. @@@@ Select Cancel to return to the Speaker Setup menu. @@@@ With Auto Poll turned off, the receiver will only check for a signal at the audio input assigned to the source.



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