harman/kardon®

AVR 460/AVR 360

AUDIO/VIDEO RECEIVER

ADVANCED FUNCTIONS MANUAL

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.

IMPORTANT SAFETY INFORMATION

Verify Line Voltage Before Use

Your AVR 460/AVR 360 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

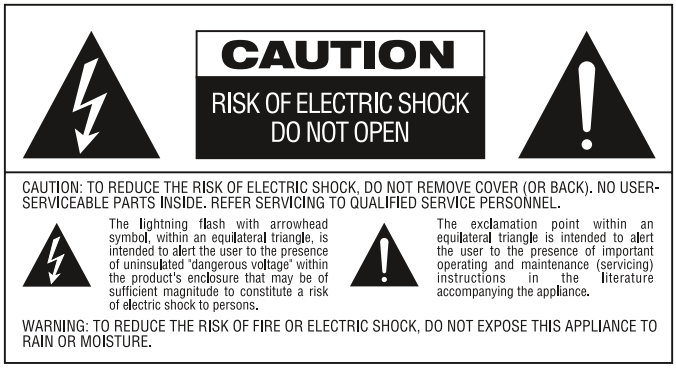
To avoid safety hazards, use only the power cord supplied with your unit. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets or place heavy objects on them. Damaged power cords should be replaced immediately 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.

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.



NOTE: This Owner's Manual explains the advanced functions of the harman/kardon AVR 460/AVR 360 receivers. It also contains note sheets for your personal use when setting up and adjusting your unit. Please read and use the Basic Manual that came with your unit before continuing with this Advanced Manual.

TABLE OF CONTENTS and FEATURES

Please register your AVR 460/AVR 360 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.

ENGLISH

Harman Kardon AVR 460/AVR 360 7.2-Channel Audio/Video Receiver

Audio Section

- AVR 460: 80 Watts x 7, seven channels driven at full power at 8 ohms, 20Hz – 20kHz, <0.07% THD, 560 watts total.
  AVR 360: 65 Watts x 7, 455 watts total.
- High-current capability, ultrawide-bandwidth amplifier design with low negative feedback
- All-discrete amplifier circuitry
- Quadruple-crossover bass management
- Dual 32-bit Cirrus Logic® DSP processor
- 192kHz/24-bit A/D and D/A conversion
- Sampling upconversion to 96kHz
- Dolby® Volume processing

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® (5.1; DTS Stereo; DTS-ES® 6.1 Discrete and Matrix)
- DTS 96/24™ (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)

Much of the AVR 460/AVR 360's performance is handled automatically, with little intervention required on your part. The AVR 460/AVR 360 is capable of being customized to suit your system and your tastes. In this Advanced Functions Manual, some of the more advanced adjustments available are described.

AUDIO PROCESSING AND SURROUND SOUND

Audio signals output by sources are encoded in a variety of formats that can affect not only the quality of the sound but the number of speaker channels and the surround mode. You may also manually select a different surround mode, when available.

Analog Audio Signals

Analog audio signals usually consist of two channels – left and right. The AVR 460/AVR 360 offers three options for playback:

1. **Analog Bypass Mode**: The 2-channel signal is passed directly from the input to the volume control, without being digitized or undergoing any processing for bass management or surround sound. To select analog bypass mode:
   a) The analog audio inputs for the source must be selected. If necessary, press the Info Button on the remote and use the ▼▲ Buttons to scroll to the Audio Input from source setting.
   b) The tone controls must be disabled by setting the Tone Control to Off. Press the Audio Effects Button to access the Tone Control setting.
   c) The 2-channel Stereo mode must be selected. Press the Surround Modes Button to access the STEREO line of the Surround Modes submenu. Press the OK Button to select 2-channel Stereo.
   When the Tone Control setting is Off, the front speakers will be set to Large automatically. When the Tone Control setting is turned On, if you have set the front speaker crossover to a numeric setting, the front speakers will return to the Small setting.

NOTE: Audio from The Bridge III source is analog, and when 2-channel Stereo mode is selected, the audio will be played in Analog Bypass mode.

2. **DSP Surround Off Mode**: The DSP Surround Off mode digitizes the incoming signal and applies the bass management settings, including speaker configuration, delay times and output levels. Select this mode when your front speakers are small, limited-range satellites and you are using a subwoofer. To select this mode, use a digital audio input, or turn the Tone Control setting off, and select 2-channel Stereo mode.
3. **Analog Surround Modes**: The AVR 460/AVR 360 is able to process 2-channel audio signals to produce multichannel surround sound, even when no surround sound has been encoded in the recording. Among the available modes are the Dolby Pro Logic II/IIx modes, the Harman Virtual Speaker modes, the DTS Neo:6 modes, the Logic 7 modes and the Stereo modes.

Digital Audio Signals

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

Even when only two channels are encoded, the digital signal allows for a higher sampling rate that delivers greater detail. High-resolution recordings sound extraordinarily distortion-free, especially at high frequencies.

Surround Modes

Surround mode selection is dependent upon the format of the incoming audio signal, as well as personal taste. Table A12 offers a brief description of each mode and indicates the types of incoming signals or digital bitstreams the mode may be used with. Additional information about the Dolby and DTS modes is available on the companies' Web sites: www.dolby.com and www.dtsonline.com.

When in doubt, check the jacket of your disc for more information on which surround modes are available. Usually, nonessential sections of the disc, such as trailers, extra materials or the disc menu, are only available in Dolby Digital 2.0 (2-channel) or PCM 2-channel mode. If the main title is playing and the display shows one of these surround modes, look for an audio or language setup section in the disc's menu. Also, make sure your player's audio output is set to the original bitstream rather than 2-channel PCM. Stop play and check the player's output setting.

For any incoming signal, only a limited number of surround modes are available. Although there is never a time when all of the AVR 460/AVR 360's surround modes are available, there is usually a wide variety of modes available for a given input.

Multichannel digital recordings are found in the 5.1-, 6.1- or 7.1-channel formats. The channels included in a 5.1-channel recording are front left, front right, center, surround left, surround right and LFE. The LFE channel is denoted as ".1" to represent the fact that it is limited to the low frequencies.

6.1-Channel recordings add a single surround back channel, and 7.1-channel recordings add surround back left and surround back right channels to the 5.1-channel configuration. New formats are available in 7.1-channel configurations. The AVR 460/AVR 360 is able to play the new audio formats, delivering a more exciting home theater experience.

NOTE: To use the 6.1- and 7.1-channel surround modes, the Surround Back channels must be enabled. See the Manual Speaker Setup section on page 6 for more information.

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

When a digital signal is received, the AVR 460/AVR 360 detects the encoding method and the number of channels, which is displayed briefly as three numbers, separated by slashes (e.g., "3/2/.1").

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

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

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

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

The second number indicates whether any surround channels are present:

"0" indicates that no surround information is present.

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

"2" indicates discrete left and right surround channels.

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

"4" is used with 7.1-channel digital formats to indicate the presence of two discrete side surround channels and two discrete back surround channels.

The third number is used for the LFE channel:

"0" indicates no LFE channel.

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

The 6.1-channel signals – Dolby Digital EX and DTS-ES Matrix and Discrete – each include a flag meant to signal the receiver to decode the surround back channel, indicated as 3/2/.1 EX-ON for Dolby Digital EX materials, and 3/3/.1 ES-ON for DTS-ES materials.

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

When a PCM signal is received, the PCM message and the sampling rate (32kHz, 44.1kHz, 48kHz or 96kHz) will appear.

When only two channels – left and right – are present, the analog surround modes may be used to decode the signal into the remaining channels. If you would prefer a different surround format than the native signal's digital encoding, press the Surround Modes Button to display the Surround Modes menu (see Figure 30).

The Auto Select option uses the native signal's digital encoding, e.g., Dolby Digital, DTS, Dolby TrueHD or DTS-HD Master Audio. For 2-channel materials, the AVR defaults to Logic 7 Movie mode. If you prefer a different surround mode, select the surround mode category: Virtual Surround, Stereo, Movie, Music or Video Game. Press the OK Button to change the mode.

Each category is set to a default surround mode:

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

You may select a different mode. The choice of surround modes depends on the number of speakers in your system.

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

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

Please refer to Table A12 in the appendix for more information on which surround modes are available with different bitstreams.

Dolby Surround Settings

Some additional settings are available for Dolby modes. When the Dolby Pro Logic II or IIx Music modes have been selected, choose the Edit submenu to adjust the Center Width, Dimension and Panorama settings. See Figure 29.

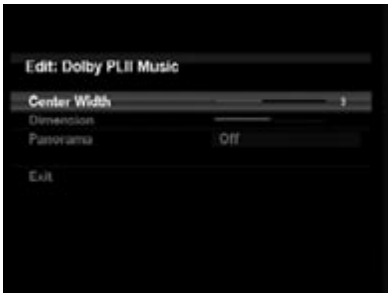


Figure 29 – Dolby Pro Logic II/IIx Music Mode Settings

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

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

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

MANUAL SPEAKER SETUP

The AVR 460/AVR 360 is flexible and may be configured for most speakers, and to compensate for the acoustic characteristics of your room.

The EzSet/EQ process automatically detects the capabilities of each speaker, and optimizes the AVR 460/AVR 360's performance. If you are unable to run EzSet/EQ calibration, or if you wish to make further adjustments, use the Manual Speaker Setup on-screen menus.

Before beginning, place your loudspeakers as explained in the Speaker Placement section, and connect them to the AVR. Consult the owner's guide for the speakers or the manufacturer's Web site for the frequency range specification. Although you may set the output levels "by ear," an SPL (sound-pressure level) meter purchased at a local electronics store will provide greater accuracy.

Record your configuration settings in Tables A3 through A11 in the appendix for easy re-entry after a system reset, or if the AVR's Master Power Switch is turned off or the unit is unplugged for more than four weeks.

NOTE: When using the AVR's Speaker Setup menus, select a video output resolution of 720p or higher to view graphics that simplify configuration.

STEP ONE – Determine Speaker Crossover

Without using the EzSet/EQ process, the AVR 460/AVR 360 can't detect how many speakers you've connected to it; nor can it determine their capabilities. Consult the speaker's technical specifications and locate the frequency response, usually given as a range, e.g., 100Hz – 20kHz (±3dB). Write down the lowest frequency that each of your main speakers is capable of playing (100Hz in the example) as the crossover in Table A3 in the appendix. This is not the same as the crossover frequency listed in the speaker's specifications. For the subwoofer, write down the transducer size.

The receiver's bass management determines which speakers will be used to play back the low-frequency (bass) portion of the source program. Sending the lowest notes to small satellite speakers won't sound right, and may even damage the speaker. The highest notes may not be heard at all through the subwoofer.

With proper bass management, the AVR 460/AVR 360 divides the source signal at a crossover point. All information above the crossover point is played through the satellite speaker, and all information below the crossover point is played through the subwoofer. Each loudspeaker in your system performs at its best, delivering an enjoyable sound experience.

STEP TWO – Measure Speaker Distances

Ideally, all of your speakers would be placed in a circle, with the listening position at the center. However, you may have had to place some speakers a little further away from the listening position than others. Sounds that are supposed to arrive simultaneously from different speakers may blur, due to different arrival times.

Use the AVR's delay adjustment to compensate for real-world speaker placements.

Measure the distance from each speaker to the listening position, and write it down in Table A4 in the appendix. Even if all of your speakers are the same distance from the listening position, enter your speaker distances as described in Step Three.

STEP THREE – Manual Setup Menu

Now you are ready to program the receiver. Sit in the usual listening position and make the room as quiet as possible.

With the receiver and video display turned on, press the Setup Button to display the menu system. Use the ▼ Button to move the cursor to the Speaker Setup line, and press the OK Button to display the Speaker Setup menu. See Figure 20 in the Basic Manual.

If you have run the EzSet/EQ process, the results were saved. To tweak the EzSet/EQ results, or to configure the AVR 460/AVR 360 from scratch, select Manual Setup. A screen similar to the one shown in Figure 30 will appear.

Figure 30 – Manual Speaker Setup Menu

NOTE: All of the speaker setup submenus include the Back option, as shown at the bottom of Figure 30. To save the current settings, select the Back option.

To reconfigure the speakers from scratch, select the Reset option.

For best results, adjust the submenus in this order: Number of Speakers, Crossover (Size), Sub Mode, Distance and Level Adjust.

Number of Speakers

Move the cursor to the Number of Speakers line and press the OK Button. See Figure 31.

Figure 31 – Number of Speakers Menu

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

The setting for the surround back speakers includes a third option: Zone 2. The AVR 460/AVR 360 is capable of multizone operation, supporting placement of a pair of speakers in another room. The AVR 460/AVR 360's assignable surround back amplifier channels make multizone operation easier than ever, since an external power amplifier is not required. Select the Zone 2 option at this line, and connect the Surround Back Speaker Outputs to loudspeakers located in the remote room.

The main room will be configured automatically for up to 5.1 channels. See the Multizone Operation section for more information.

NOTE: When the Surround Back speakers are set to "Zone 2", they will not be configured during the EzSet/EQ process. To use the speakers in the main listening area, configure them as "On", and run the EzSet/EQ process for a 7.1-channel system. If the speakers will only be used during multizone operation, configure them manually, as explained below.

The settings in this menu affect the remainder of the speaker setup process and the availability of various surround modes at any time.

When you have finished, select the Back option or use the Back/Exit Button.

Adjust Crossover Frequencies Menu

After you have programmed the number of speakers, the AVR will return to the Manual Speaker Setup menu (see Figure 30). Navigate to the Crossover (Size) line and press the OK Button to display the Adjust Crossover Frequencies menu (see Figure 32).

Figure 32 – Adjust Crossover Frequencies Menu

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

Refer to Table A3 for each speaker's crossover. For the main speakers, this is the lowest frequency the speaker reproduces well.

For each main speaker, select one of the seven crossover frequencies: 40Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz or 200Hz. If the crossover frequency is below 40Hz, select the first option, "Large". This setting doesn't refer to the speaker's physical size, but to its frequency response, which is also called "full range".

Specify the size of the subwoofer's transducer as 8, 10, 12 or 15 inches. The AVR always sets the subwoofer crossover to 100Hz, but uses the transducer size for equalization. Write down the settings in Table A3 in the appendix.

When you have finished entering the settings, select Back, or press the Back/Exit Button.

Sub Mode

Move the cursor to the Sub Mode line. This setting depends upon how you programmed the front left and right speakers.

- If you set the front speakers to a numeric crossover frequency, the subwoofer setting will always be SUB. All low-frequency information will always be sent to the subwoofer. If you don't have a subwoofer, either upgrade to full-range speakers or add a subwoofer at the earliest opportunity.
- If you set the front speakers to LARGE, select one of the three settings for the subwoofer.
  - **L/R+LFE**: This setting sends all low-frequency information to the subwoofer, including both information that would normally be played through the front left and right speakers, and the special low-frequency effects (LFE) channel information.
  - **Off**: Select this setting when no subwoofer is in use. All low-frequency information will be sent to the front left and right speakers.
  - **LFE**: This setting plays low-frequency information contained in the left and right program channels through the front speakers, and directs only the LFE channel to the subwoofer.

NOTE: If you are using a Harman Kardon HKTS Series speaker system, select the appropriate numeric crossover frequency for the Main Speaker groups, and the subwoofer will automatically be set to LFE.

Adjust Speaker Distance Menu

Placing the speakers at different distances from the listening positions can muddy the sound, as sounds are heard earlier or later than desired.

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

On the Manual Speaker Setup menu, move the cursor to the Distance line and press the OK Button to display the Adjust Speaker Distance menu. See Figure 33.

Figure 33 – Adjust Speaker Distance Menu

Enter the distance from each speaker to the listening position, as measured in Step Two – Measure Speaker Distances and recorded in Table A4 in the appendix (see page 15).

The default unit of measurement is feet. To change the unit to meters, return to the main AVR menu. Select the System Settings menu, then scroll down to the General Setup section and select the Unit of Measure line. Press the OK Button to change the setting.

Select a speaker, then use the ◀ ▶ Buttons to change the measurement. The values vary between 0 and 10 meters, with a default of 3 meters for all speakers.

NOTE: If the surround back channels are assigned to the multizone system, you will not be able to adjust their delay settings.

ENGLISH

STEP FOUR – Setting Channel Output Levels Manually

For a conventional 2-channel receiver, the balance control affects the stereo imaging by adjusting the relative loudness of the left and right channels.

With up to seven main channels, plus a subwoofer, imaging becomes both more critical and more complex. The goal is to ensure that each channel is heard at the listening position with equal loudness.

EzSet/EQ calibration can handle this critical task for you, simply and automatically. However, the AVR's Adjust Speaker Levels menu allows you to calibrate the levels manually, either using the system's test tone or while playing source material.

1. Make sure all speakers have been placed and connected correctly.
2. Adjust the number of speakers, crossover, distance and sub mode for each speaker in your system, as described in Step Three.
3. Measure the channel levels in one of these ways, and adjust the channel levels using the Adjust Speaker Levels menu:
   a) Preferably, use a handheld SPL meter set to the C-Weighting, Slow scale. Adjust each channel so that the meter reads 75dB.
   b) By ear. Adjust the levels so that all channels sound equally loud.
   c) If you are using a handheld SPL meter with source material, such as a test disc or an audio selection, play it and adjust the AVR's master volume control until the meter measures 75dB.

Press the Setup Button to display the menu system, and then navigate to the Speaker Setup line. Press the OK Button to display the Speaker Setup menu. Select Manual Setup, press the OK Button, and then navigate to the Level Adjust line. Press the OK Button to display the Adjust Speaker Levels menu. See Figure 34.

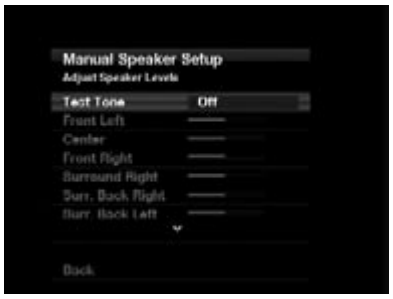


Figure 34 – Adjust Speaker Levels Menu

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

Reset Levels: To reset all levels to their factory defaults of 0dB, scroll down to this line at the bottom of the menu and press the OK Button.

To set your levels using the AVR 460/AVR 360's internal test tone, adjust the TEST TONE line as follows:

Test Tone: Determines whether the test tone is active. To begin, press the OK Button repeatedly to select the Off, Auto or Manual setting. Manually moving the cursor out of the channel listings area of the screen automatically stops the test tone.

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

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

Individual Channels: If you are using an external source to set your output levels, navigate to each channel and use the ◀ ▶ Buttons to adjust the level, between –10dB and +10dB.

When you have finished adjusting the speaker levels, select the Back option or press the Back/Exit Button. Record the level settings in Table A3 in the appendix.

AUDIO EFFECTS

To adjust other audio settings, such as the tone controls, press the Audio Effects Button to display the Audio Effects menu (see Figure 26 in the Basic Manual). The menu may also be accessed from the Setup Source menu by pressing the Info Settings Button and selecting Audio Effects.

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

Dolby Volume: See page 29 in the Basic Manual for an explanation of Dolby Volume processing and its benefits. Refer to Table 3 on that page for an explanation of each of the Dolby Volume settings.

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

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

LFE Trim: Attenuates the loudness of the subwoofer. Effective only when an LFE channel is present. The setting defaults to the maximum of 0dB. Press the ◀ ▶ Buttons to reduce the level by up to 10dB; the setting will appear as a negative number.

MP3 Enhancer: Enhances the frequency range of MP3 tracks. Select On, or leave at the default Off setting for non-MP3 audio.

EQ On/Off: This setting activates or deactivates the equalization settings obtained when the EzSet/EQ II process was run. The settings are saved for reactivation at a later listening session.

When you have finished, press the Audio Effects Button or the Back/Exit Button.

VIDEO ADJUSTMENTS

The AVR 460/AVR 360 uses leading-edge Faroudja DCDi Cinema video processing technology. Incoming video may be upscaled up to 1080p (1080i with component video outputs) for outstanding video quality, even with analog video sources. The Faroudja DCDi Cinema Dual 3D comb filters and 10-bit video processing eliminate the jagged edges and moiré patterns seen with less advanced processing.

The "Torino" video processing chip generates on-screen graphics in high definition, and blends it with the incoming video, so that you can continue to watch a program while using system menus.

The video processor automatically provides the best picture based on the capabilities of your video display and the incoming source video. You may experiment with the Video Modes menu adjustments to try to improve the picture further.

Video Modes

Adjust the picture settings on your video display before adjusting the AVR. Access the picture settings from the Video Modes menu. Press the Video Modes Button, and the screen shown in Figure 35 will appear. The menu may also be accessed from the Info Settings menu.

NOTE: The settings in the Video Modes menu affect each source independently.

Figure 35 – Video Modes Menu

Video Mode: The default setting of Off passes the video signal through to the display with only basic video processing. Video scaling cannot be turned off, but selecting the HDMI Bypass mode in the Info Settings menu for a source connected to one of the HDMI Inputs passes the video signal directly from the HDMI Input to the HDMI Output, bypassing all video processing. Select one of these processing options to optimize the picture for the current program by applying adjustments to the brightness, contrast, color and sharpness:

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

Picture Adjust: Changes the aspect ratio of the displayed image.

Widescreen (16:9) images are displayed on a full-screen (4:3) device in letterbox format. Black bars may appear above and below the image.

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

Plasma and CRT monitors may suffer from "burn-in" when the same image, such as the horizontal or vertical bars, is left on screen for a long period of time. Adjust the picture so that it fills the display's screen. Highlight this setting and press the OK Button. Each press of the ▲▼ Buttons changes the setting. Press the OK Button when the desired setting appears.

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

Experiment with this setting until you find a pleasing display format for each program.

Overscan: For historical reasons, there is a convention to reserve an area around the border of a video frame, called "overscan", that may be viewed on newer high-definition displays, although it was not visible on older analog television sets. However, since not all displays are capable of showing this portion of the frame, directors avoid placing important information in that area.

If your video display is capable of displaying the overscan area, turn this setting on to avoid seeing a black border around the image which could cause unwanted "burn-in" on some plasma and CRT displays. The AVR turns this setting off by default when the source device is connected to one of the HDMI Inputs. The setting is turned on by default when the source is connected to one of the analog video inputs.

Advanced Video Settings: Press the ▶ or OK Button to display the Advanced Video Modes submenu (see Figure 36). This submenu is not accessible when the video processor (Video Mode setting) is turned off.

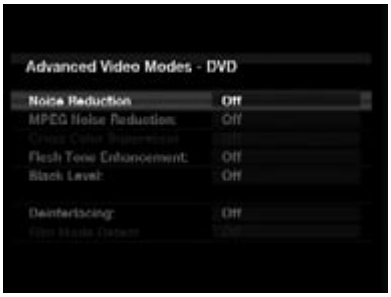


Figure 36 – Advanced Video Modes Menu

Noise Reduction: Adjust this setting to Low, Medium or High to filter out signal noise, or turn it off.

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

Cross Color Suppressor: Turn this setting on to remove cross color artifacts, which can occur when high-frequency luminance (brightness) signals are misinterpreted as chroma (color) signals, causing unwanted flickering, flashing colors or rainbow patterns. This setting is not available with HDMI sources, or when no video signal is present.

Black Level: This setting is only effective when used with the Composite Video Output. Turn it on for a full black-level setting that provides the full dynamic range of black as presented on most DVDs. When turned off, the setting complies with standards for video with "setup", and may be more appropriate when your video display has limited video processing capability.

Deinterlacing: For historical reasons, video information was interlaced. That is, each refresh of the television screen displayed only half the pixels in a frame, alternating between all of the even rows of pixels and all of the odd rows. Modern displays are capable of displaying the complete frame all at once by progressively scanning all of the rows of pixels from top to bottom. For optimal viewing on a progressive-scan display (most flat-panel displays), the video images must be deinterlaced. When viewing images via the Composite Video Monitor Output, any time the AVR's video output resolution is 576i, this setting may be turned off.

Film Mode Detect: This setting is only accessible when the Deinterlacing setting is turned on. It compensates for the different frame rates in which film and video are shot. Film is shot at a rate of 24 frames per second (progressive scan), while video is shot at slightly less than 60 frames per second (interlaced). The AVR is able to detect whether the program was originally shot on film and transferred to video (e.g., to create a DVD), and to compensate appropriately for any authoring errors in the conversion. Select a setting of 3:2 (for NTSC materials), 2:2 (for PAL materials), Off or Auto.

How to Adjust the Custom Picture Settings

Set the Video Mode to Custom to display the picture settings, as shown in Figure 37.

Figure 37 – Video Modes Custom Processing

With a color bar test pattern from a test disc or other source on screen, the following adjustments may be made:

- The color intensity setting on your TV.
- Color adjustments using the color bars, which may be (left to right) black, white, yellow, cyan (turquoise), green, magenta, red, blue, black.
- The color transition, seen as sharp separation of the bars.
- The performance of the color circuits in your TV (with "Video" signals); bar edges should show no vertical crawling dots.

Use the gray scale and the black/white fields in the test pattern to adjust the brightness and contrast.

Brightness Adjustment

1. Turn down the color control on your TV until the color bars appear in black and white.
2. Adjust the contrast to the lowest level where you still can see all gray scale bars separately and clearly.
3. Adjust the brightness so that the bars in the gray scale are all visible. The bar farthest to the left has to be as black as possible rather than gray but the next gradation must clearly be distinct from it. The bars in the gray scale should gradually and evenly change from black to white.

Contrast Adjustment

1. Adjust the contrast on your TV until you see a bright white bar in the lower right corner of the screen and a deep-dark-black bar to the left.
2. If the brightness of the white bar no longer increases when the contrast is turned up or the borders of white letters bloom (overlight) into the black areas (drastically decreasing the sharpness of the type), the contrast has been turned up too much. Reduce the contrast until these effects disappear and the video still looks realistic.
3. If you are watching TV with ambient daylight, adjust the contrast so that a normal video picture looks the same as the surroundings in your room; that way the eye is relaxed when watching the TV picture. Reduce the setting when the surrounding light is dimmed to improve the sharpness of the picture.
4. The gray scale in the middle line should retain the same distinction between each bar as before the contrast adjustment. If not, repeat both Step 3 of the Brightness Adjustment and the Contrast Adjustment.

Color Adjustment

1. When the brightness and contrast are set optimally, adjust the color control. Set the level so that the colors look strong but still natural, not overdone. If the color level is too high, depending on the TV, some of the bars will seem wider or the color intensity will not increase when the control is turned up. Test the color intensity with a video of pictures of faces, flowers, fruit and vegetables.
2. Refer to a large white bar in your test pattern to tweak the warmth of the picture using the Tint control on your TV.

Sharpness Adjustment

Contrary to intuition, the picture will appear sharper and clearer with the sharpness backed off from the maximum setting. Reduce the sharpness setting on your television, and the setting on the AVR 460/AVR 360, if necessary, to minimize the appearance of any white lines between the bars in the gray scale portion of the test screen.

Convergence and Edge Focus

The crosshatch pattern that may surround the test screen may be used to evaluate edge focus and convergence in front- or rear-projection video displays. If you are unable to improve the picture using the available controls, contact the video display manufacturer's authorized service representative for assistance.

When you have finished making any video adjustments, press the Back/Exit Button.

MULTIZONE OPERATION

With the multizone system in use, you may enjoy an exciting 5.1-channel home theater presentation in the main listening area, while others listen to the same materials or an entirely different presentation in another room.

Although installation of a multizone system is not complicated, it requires running wires inside walls. Check your local building codes and comply with the requirements for in-wall wiring systems, to prevent the possibility of a dangerous situation. If you have any questions about installing a multizone system, it is strongly recommended that you contact a professional custom installer. See Step Eight of the Installation section on page 22 in the Basic Manual for instructions on installing a multizone system.

Operating the Multizone System

The AVR 460/AVR 360's multizone system is accessed using the on-screen Zone 2 menu. Press the Setup Button, and use the ▲▼ Buttons to navigate to the Zone 2 line. Press the OK Button to display the Zone 2 menu. See Figure 38.

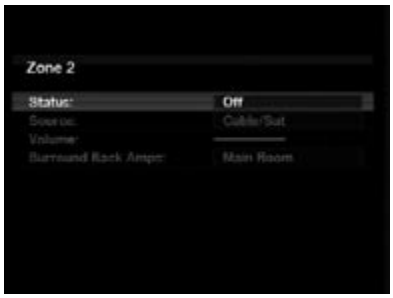


Figure 38 – Zone 2 Menu

Status: Turns the multizone system on or off. When no one is listening in the remote room, leave this setting at the default of OFF.

Source: Indicates the source input for the remote zone. You may select a different source from the main listening area. However, if the same source has been selected for both the main listening area and the remote zone, listeners in both areas will hear the same content.

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

1. In addition to a digital audio connection, connect the source device's analog audio outputs to the AVR. Make a note in Table A5 in the appendix which set of inputs was used.
2. In the Info Settings menu, leave the Audio Input From Source setting at the digital audio input. Scroll down to the Zone 2 Audio setting and select the analog audio input.

Volume: The volume is controlled separately for the remote zone.

Surround Back Amps: Reassign the surround back channels to the multizone system. When this line is set to Zone 2, you may only configure the main listening room for up to 5.1 channels. The EzSet/EQ process will only configure the main system. Use the Manual Setup section of the Speaker Setup menu to configure the remote speakers with this setting at Main Room, then return this setting to Zone 2.

To operate the multizone system using the main remote, slide the Zone Select Switch at the bottom of the remote to the "2" position. To select a zone using the Zone 2 remote (AVR 460 only), press the Zone Selector, and the Zone Indicator will turn green when the remote is set to operate Zone 1, or red to operate Zone 2.

SYSTEM SETTINGS

The AVR 460/AVR 360 offers system settings for ease of use. These settings may be accessed from the System Settings menu, which is selected by pressing the Setup Button and navigating to the System line. Press the OK Button to display the System Settings menu. See Figure 39.

Figure 39 – Systems Settings Screen

Front-Panel Dimmer: Select On 100% for full brightness, dim to 50% or 25% of full brightness or select Off to fully darken the display. The light inside the Volume Control will go out when the display is partly or fully dimmed, but the Power Indicator will always remain lit to remind you that the AVR is powered on.

GENERAL AVR SETTINGS

Volume Units: Select whether volume is displayed in the conventional decibel scale or on a numeric scale from 0 to 90. When the decibel scale is used, 0dB is the maximum recommended volume, with lower volumes displayed as negative values.

Volume Default and Volume Default Level: These two settings are used together to program the volume level at turn-on. Turn Volume Default on, and then set the Volume Default Level to the desired turn-on volume. When the Volume Default setting is left off, the AVR will play at the last-used volume setting from the previous listening session.

Unit of Measure: Adjusts the speaker-distance settings for Manual Speaker Setup. Select between meters and feet.

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

HDMI Audio to TV: Determines whether HDMI audio signals are passed through the HDMI Output to the video display. In normal operation, leave this setting Off, as audio will be played through the AVR. To use the TV by itself, without the home theater system, turn this setting On. Mute the TV's speakers when using the AVR for audio.

Dolby Volume Calibration: This setting determines the Dolby Volume Calibration Offset, as described on page 30 in the Basic Manual.. Its default of 0dB is best when the system's loudspeakers have a sensitivity rating of 88dB (8 ohms, 1 watt, 1 meter). If your loudspeakers have a higher sensitivity rating, increase the Dolby Volume Calibration setting by the difference between your speakers' sensitivity and 88dB. If your speakers have a lower sensitivity, decrease the Dolby Volume Calibration setting by the difference between 88dB and your speakers' sensitivity.

Menu Appearance

Menu Transparency: Select whether video programs will be visible when the menu system is in use. Select Normal for a fully transparent background, Medium for partial transparency or Opaque to block video programs while the menus are on screen.

Volume/Status Messages: When the AVR is turned on, the volume is adjusted or the source is changed, or if a change in the input signal is detected, a status message will be displayed on screen. Select how long the message remains visible, from 2 to 10 seconds, with a default of 3 seconds. Select "Off" if you do not wish to see the status messages.

Menus: This setting governs how long the Surround Modes, Video Modes and Audio Effects menus remain visible after the last adjustment: 5, 10 or 30 seconds, 1 minute or 5 minutes. Select "No Time-Out" to view the menus indefinitely, but this setting is not recommended, due to the danger of "burn-in" on some video displays.

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

Screen Saver: Program a time-out period for no activity (with no menus displayed) before the AVR's built-in screen saver begins. Select a period of 5, 10, 20 or 30 minutes or 1 hour, or turn off the screen saver. A time-out period avoids the possibility of burn-in damage to plasma or CRT displays.

System Information

Software Version: This line is informational only. From time to time, Harman Kardon, Inc., may release software upgrades that improve performance or add features. If you are experiencing difficulties with the AVR, a customer service representative may ask for the software version of your product to determine whether a later upgrade is available.

Upgrade Software: If a software upgrade is released for the AVR 460/AVR 360, installation instructions will be available in the Product Support section of the Web site or from Harman Kardon Customer Service. At that time, you may access this submenu to install the upgrade software.

NOTE: During a system upgrade, do not power off the AVR or use any of its controls. Doing so could permanently damage the AVR.

ADVANCED REMOTE CONTROL FUNCTIONS

The AVR 460/AVR 360 remote control also serves as a universal remote that may be programmed to operate other components. Refer to the Function List (Table A13 in the appendix) for assistance in operating your other components. The function of each button will not necessarily correspond to the label printed on the button.

Punch-Through Programming

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

To program punch-through control while operating any device:

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

For example, to watch the TV while changing channels using the cable box, press and hold the TV Button until it lights. Then press the Channel Up Button, followed by the Cable/SAT Button.

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

NOTE: The Volume and Mute controls are always dedicated to the AVR.

Activities (Macros)

Activities are used to program sequences of up to 19 commands that are executed with a single button press. Activities are well suited for power on and off commands, to send out a multidigit channel number with one button press, or to control another device with more flexibility than the built-in punch-through controls. Up to eleven activities may be programmed.

NOTE: Use caution when programming complicated activities. It isn't possible to program a pause or delay before sending commands after Power On, and the component may not be ready to respond to commands immediately after powering on.

To program, or "record" an activity, follow these steps:

1. To enter Program mode, simultaneously press and hold the Activity Button and the Alphanumeric Key or AVR Power On or Off Button to which the activity will be assigned.
2. Press the Source Selector (or Setup Button) for each device before you enter individual commands. This step counts as one of the 19 commands allowed for each activity.
3. For Power On, press the AVR or Device Power On Button.
4. Press the AVR or Device Power Off Button for Power Off.
5. Press the Activity Button to end the programming process, and the last Source Selector (or the Setup Button) will flash three times.

It isn't possible to "edit" a command within an activity. To erase the activity:

1. Press and hold the Activity Button and the Alphanumeric Key or AVR Power On or Off Button until the Source Selector or Setup Button lights.
2. Press the Activity Button to erase the activity.

To execute an activity, press the Activity Button, then press the Alphanumeric Key (or the AVR Power On or Off Button) for the Activity.

Learning (AVR 460 only)

If you have programmed a product's codes into the remote and find that some functions are missing, the AVR 460 remote may "learn" individual codes from the product's original remote. See page 24 in the Basic Manual.

Resetting the Remote

To reset the remote to its factory defaults, simultaneously press and hold the TV Source Selector and the "0" Alphanumeric Key. When the TV Button relights, enter the code "333". When the TV Button goes out, and all of the Source Selectors flash, the remote control will be reset.

PROCESSOR RESET

If the unit behaves erratically after a power surge, first turn off the Main Power Switch and unplug the AC power cord for at least 3 minutes. Plug the cord back in and turn the receiver on. If this doesn't help, reset the AVR.

NOTE: A system reset erases all user configurations, including video resolution, speaker and level settings, and tuner presets. After a reset, reenter all of these settings from your notes in the appendix worksheets.

To reset the AVR 460/AVR 360, place it in Standby mode (press the front-panel Standby/On Switch so that the Power Indicator turns amber). Then press and hold the front-panel OK Button for at least 5 seconds until the RESET message appears.

If the receiver does not function correctly ofter a processor reset, contact an authorized Harman Kardon service center for assistance. Authorized service centers may be located by visiting the Web site at www.harmankardon.com.

NOTE: After performing a system reset, wait at least 1 minute before pressing any Source Selectors.

MEMORY

If the AVR 460/AVR 360 is unplugged or experiences a power outage, it will retain user settings for up to four weeks.

Appendix – Default settings, worksheets, remote product codes

Table A1 – Recommended Source Component Connections

Device Type	AVR 460/AVR 360 Source	Digital Audio Connection	Analog Audio Connection	Video Connections
Cable TV, satellite TV, HDTV or other device that delivers television programs	CBL/SAT	HDMI 2	Analog 1	HDMI 2
DVD Audio/Video, SACD, Blu-ray Disc, HD-DVD player	DVD	HDMI 1	Analog 2	HDMI 1
Media Server, including Harman Kardon DMC 1000	Media Server	HDMI 4	Analog 5	HDMI 4
TV	TV	Optical 1	Analog 3	Component 1*
Video game console	Game	HDMI 3	Analog 4	HDMI 3
Any audio or video device, e.g., CD player, camcorder, cassette deck	AUX	Coax Front	Analog Front	Composite Front (not used for audio-only devices)
Recorder	Any	Coaxial 2 input and Coaxial Output	Analog 4 inputs and outputs	Composite Video 2 input and output
iPod or iPhone	The Bridge III	None	The Bridge III	The Bridge III for photo- and video-capable iPod and iPhone models

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

Table A2 – Source Setting Defaults

	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX	The Bridge
Surround Modes (Auto Select)	Logic 7 Movie	Logic 7 Movie	Logic 7 Music	Logic 7 Movie	Logic 7 Movie	Logic 7 Movie	Logic 7 Music	Logic 7 Music
Video Input	HDMI 2	HDMI 1	HDMI 4	N/A	Component 1	HDMI 3	Composite Front	The Bridge III
Audio Input	HDMI 2	HDMI 1	HDMI 4	N/A	Optical 1	HDMI 3	Coaxial Front	The Bridge III
Resolution to Display*	576i/480i	576i/480i	576i/480i	576i/480i	576i/480i	576i/480i	576i/480i	576i/480i
Audio Auto Polling	Off	Off	Off	N/A	Off	Off	Off	N/A
Zone 2 Audio	Analog 1	Analog 2	Analog 5	Radio	Analog 3	Analog 4	Analog Front	The Bridge III
Dolby Volume	Medium	Low	Medium	Medium	Medium	Medium	Low	Medium

* Video output resolution may vary for HDMI connections.

Table A3 – Speaker/Channel Setting Defaults

	All Digital and 2-Channel Analog Audio Inputs	6-/8-Channel Analog Audio Inputs*	Your Settings Position 1	Your Settings Position 2
Left/Right Speakers	ON	ON		
Center Speaker	ON	ON		
Left/Right Surround Speakers	ON	ON		
Left/Right Surround Back Speakers	OFF	OFF		
Subwoofer 1	ON	ON		
Subwoofer 2	ON	ON		
Left/Right Speakers Crossover	100Hz	Large*		
Center Speaker Crossover	100Hz	Large*		
Left/Right Surround Speakers Crossover	100Hz	Large*		
Left/Right Surround Back Speakers Crossover	100Hz	Large*		
Subwoofer Mode	LFE	LFE*		
Subwoofer Size	25 cm/10 inch	ON		
Front Left Level	0dB	0dB		
Center Level	0dB	0dB		
Front Right Level	0dB	0dB		
Surround Right Level	0dB	0dB		
Surround Back Right Level	0dB	0dB		
Surround Back Left Level	0dB	0dB		
Surround Left Level	0dB	0dB		
Sub Level	0dB	0dB		

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

Table A4 – Delay Setting Defaults

Speaker Position	Distance From Speaker to Listening Position	Your Delay Settings Position 1	Your Delay Settings Position 2
Front Left	4 meter		
Center	4 meter		
Front Right	4 meter		
Surround Right	3,3 meter		
Surround Left	3,3 meter		
Surround Back Right	3,3 meter		
Surround Back Left	3,3 meter		
Subwoofer	4 meter		
A/V Lip Sync Delay (See Info Settings Menu)	0 mS		

Table A5 – Source Settings

	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX	The Bridge
Device Type								
Surround Modes								
Video Input								The Bridge III
Audio Input								The Bridge III
Resolution to Display								
Adjust Lip Sync								
Change Name								N/A
Audio Auto Polling								N/A
Zone 2 Audio								The Bridge III
Dolby Volume								

Table A6 – Audio Effects Settings

	Default	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX	The Bridge
Dolby Volume	See Source								
Tone Control	Off								
Treble	0dB								
Bass	0dB								
LFE Trim	0dB								
MP3 Enhancer	Off								

Table A7 – Video Modes Settings

	Default	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX	The Bridge
Video Mode	Off								
Brightness*	50								
Contrast*	50								
Color*	50								
Sharpness*	50								
Picture Adjust	Auto Fit								
Overscan	On								
Noise Reduction**	Low								
MPEG Noise Reduction**	Low								
Cross Color Suppressor**	On								
Black Level**	Off								
Deinterlacing**	On								
Film Mode Detect**	3:2								

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

Table A8 – Surround Modes

	Default	Cable/Sat	DVD	Media Server	Radio	TV	Game	AUX	The Bridge
Auto Select	Logic 7 Movie or native digital format								
Virtual Surround	Harman Virtual Speaker								
Stereo	5 CH Stereo								
Movie	Logic 7 Movie								
Music	Logic 7 Music								
Game	Logic 7 Game								
Center Width*	0								
Dimension*	0								
Panorama*	Off								

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

Table A9 – Remote Control Codes

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

Table A10 – System Settings

Feature	Default	Your Settings
Front-Panel Dimmer	On 100%	
Volume Units	dB	
Volume Default	Off	
Volume Default Level	-25dB	
Unit of Measure	Meter	
Language	English	
HDMI Audio to TV	Off	
Dolby Volume Calibration	0dB	
Menu Transparency	Medium	
Volume/Status Messages	3 seconds	
Menus	1 minute	
Setup and Slide-In Menus	15 minutes	
Screen Saver	10 minutes	
Software Version	Check your product	

Table A11 – Zone 2 Settings

Source Input	Default	Your Settings
Status	Off	
Source	FM Radio	
Volume	-25dB	
Surround Back Amps	Main Room	

Table A12 – Surround Modes

Surround Mode	Description	Incoming Bitstream or Signal
Dolby Digital	Provides up to five separate main audio channels and a dedicated low-frequency effects (LFE) channel.	• Dolby Digital 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 2/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • Dolby Digital EX (played as 5.1) • Dolby Digital Plus decoded and delivered via coax or optical connection
Dolby Digital EX	An expansion of Dolby Digital 5.1 that adds a surround back channel which may be played through one or two surround back speakers. May be manually selected when a non-EX Dolby Digital stream is detected.	• Dolby Digital EX • Dolby Digital 2/2/.0 or .1, 3/2/.0 or .1
Dolby Digital Plus	An enhanced version of Dolby Digital encoded more efficiently, Dolby Digital Plus has the capacity for additional discrete channels and for streaming audio from the Internet, all with enhanced audio quality. Source material may be delivered via an HDMI connection, or decoded to Dolby Digital or PCM and transmitted via S/P-DIF coaxial or optical digital audio.	• Dolby Digital Plus via HDMI connection (source device decodes to Dolby Digital when a coax or optical connection is used)
Dolby TrueHD	Dolby TrueHD is an expansion of MLP Lossless™ audio, the same format used on DVD Audio discs. Dolby TrueHD adds the features found in Dolby Digital, such as night mode settings, while delivering fully lossless audio that is a true reproduction of the studio master recording.	• Blu-ray Disc or HD-DVD encoded with Dolby TrueHD, delivered via HDMI
Dolby Digital Stereo	Delivers a 2-channel downmix of Dolby Digital materials.	• Dolby Digital 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 2/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • Dolby Digital EX
Dolby Pro Logic II Mode Group	Analog decoder that derives five full-range, discrete main audio channels from matrix surround-encoded or 2-channel analog sources. Four variants are available.	See below
Dolby Pro Logic II Movie	Variant of Dolby Pro Logic II that is optimized for movie and television programs.	• Dolby Digital 2.0 or 2.1 • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic II Music	Variant of Dolby Pro Logic II that is optimized for music selections. Allows adjustment of sound field presentation in three dimensions: • Center Width (adjusts width of vocal soundstage) • Dimension (adjusts depth of soundstage) • Panorama (adjusts wraparound surround effect)	• Dolby Digital 2.0 or 2.1 • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic II Game	Variant of Dolby Pro Logic II that emphasizes use of the surround channels and subwoofer for total immersion in the video gaming experience.	• Dolby Digital 2.0 or 2.1 • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic	Original version of Dolby Pro Logic that steered a mono signal containing information below 7kHz to the surround channels.	• Dolby Digital 2.0 or 2.1 • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic IIx Mode Group	An expansion of Dolby Pro Logic II that adds a surround back channel which may be played through one or two surround back speakers. The Dolby Pro Logic IIx modes may be selected not only with Dolby Digital bitstreams, but thanks to the AVR 460/AVR 360's post-processor, they may also be used with some DTS bitstreams to add a surround back channel to 5.1 modes.	See below
Dolby Pro Logic IIx Movie	This mode is similar to Dolby Pro Logic II Movie, with an added surround back channel.	• Dolby Digital 2/0/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1, EX • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)

Table A12 – continued

Surround Mode	Description	Incoming Bitstream or Signal
Dolby Pro Logic IIx Music	This mode is similar to Dolby Pro Logic II Music, including the availability of center width, dimension and panorama adjustments. Dolby Pro Logic IIx Music adds a surround back channel.	• Dolby Digital 2/0/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1, EX • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic IIx Game	This mode is similar to Dolby Pro Logic II Game, with the added benefit of a surround back channel.	• Dolby Digital 2/0/.0 or .1 • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz)
Harman Virtual Speaker	Simulates 5.1 channels when only two speakers are present, or a more enveloping sound field is desired.	• Dolby Digital enveloping sound field is desired. • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz or 48kHz)
Dolby Virtual Speaker Reference	When only two main speakers are present, the Reference mode virtualizes a full surround presentation with accurate localization.	• Dolby Digital (uses only two-speaker mode when signal does not contain center channel information) • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz or 48kHz)
Dolby Virtual Speaker Wide	When only two main speakers are present, the Reference mode virtualizes a full surround presentation with accurate localization.	• Dolby Digital (uses only two-speaker mode when signal does not contain center channel information) • Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz or 48kHz)
DTS Digital	Using a different encoding/decoding method than Dolby Digital, it also provides up to five discrete main channels, plus an LFE channel.	• DTS 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 3/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • DTS-ES Matrix (played as 5.1) • DTS-ES Discrete (played as 5.1)
DTS-HD	DTS-HD is a new high-definition audio format that complements the high-definition video found on Blu-ray Disc and HD-DVD discs. It is transmitted using a DTS core with high-resolution extensions. Even when only DTS 5.1 surround sound is desired (or available, if the multizone system is in use), the higher capacity of high-resolution discs serves up DTS at twice the bit rate used on DVD-Video discs.	• Blu-ray Disc or HD-DVD discs encoded with DTS-HD modes, delivered via HDMI
DTS-HD Master Audio	DTS-HD Master Audio technology delivers bit-for-bit reproductions of the studio master recording in up to 7.1 channels, for an incredibly accurate performance.	• Blu-ray Disc or HD-DVD discs encoded with DTS-HD Master Audio technology, delivered via HDMI
DTS-ES Matrix	DTS Extended Surround adds a single surround back channel to DTS 5.1 digital surround sound. The Matrix version includes the surround back channel information "matrixed" into the left and right (side) surround channels, for compatibility with 5.1-channel systems.	• DTS-ES Matrix
DTS-ES Discrete	DTS-ES Discrete is another Extended Surround mode that adds a surround back channel, but this information is encoded discretely on the disc, and is not derived from information contained in the surround channels.	• DTS-ES Discrete
DTS Stereo	Delivers a 2-channel downmix of DTS Digital materials, or presents a matrix-encoded surround presentation.	• DTS 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 3/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • DTS 96/24 • DTS-ES Matrix • DTS-ES Discrete
DTS Neo:6 Mode Group	DTS Neo:6 analog processing is available with DTS and DTS 96/24 signals and 2-channel analog or PCM signals to create a 3-, 5- or 6-channel presentation.	See below

Table A12 – continued

Surround Mode	Description	Incoming Bitstream or Signal
DTS Neo:6 Cinema	Depending on the number of speakers in your system, select 3-, 5- or 6-channel modes, enhanced for movie or video presentations.	• DTS 2/2/.0 or .1, 3/2/.0 or .1 • DTS 96/24 • Analog (2-channel) • PCM (32kHz, 44.1kHz or 48kHz)
DTS Neo:6 Music	Available only in 5- and 6-channel modes, creates a surround presentation suitable for music recordings.	• DTS 2/2/.0 or .1, 3/2/.0 or .1 • DTS 96/24 • Analog (2-channel) • PCM (32kHz, 44.1kHz or 48kHz)
Logic 7 Mode Group	A Harman International proprietary technology, Logic 7 technology enhances 2-channel and matrix-encoded recordings by deriving separate information for the surround back channels. This provides more accurate placement of sound, improves panning and expands the sound field, even when used with 5.1-channel systems. Logic 7 technology uses 96kHz processing, and is available in 5.1-or 7.1-channel modes. Three variants are available.	See below
Logic 7 Movie	Especially suited to 2-channel sources containing Dolby Surround or matrix encoding, Logic 7 Movie mode increases center channel intelligibility.	• Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Logic 7 Music	The AVR 460/AVR 360 is programmed at the factory to default to this mode for 2-channel signals. Logic 7 Music mode is well suited to conventional 2-channel music recordings.	• Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Logic 7 Game	Use Logic 7 Game mode to enhance enjoyment of video game consoles.	• Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
5-Channel Stereo	Useful for parties, the left- and right-channel information is played through both the front and surround speakers on each side, while the center speaker plays a summed mono mix.	• Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz, 192kHz)
7-Channel Stereo	Expands the 5-Channel Stereo presentation to include the surround back channels.	• Analog (2-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz, 192kHz)
2-Channel Stereo	Turns off all surround processing and plays a pure 2-channel signal or a downmix of a multichannel signal. The signal is digitized and bass management settings are applied, making it appropriate when a subwoofer is used.	• Analog (2-channel; DSP downmix available for multichannel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
2-Channel Stereo (Analog Bypass)	Maintains an analog input signal in that form, bypassing all digital processing (i.e., surround and bass management). Requires Tone Control setting to be off.	• Analog (2-channel) • Tuner

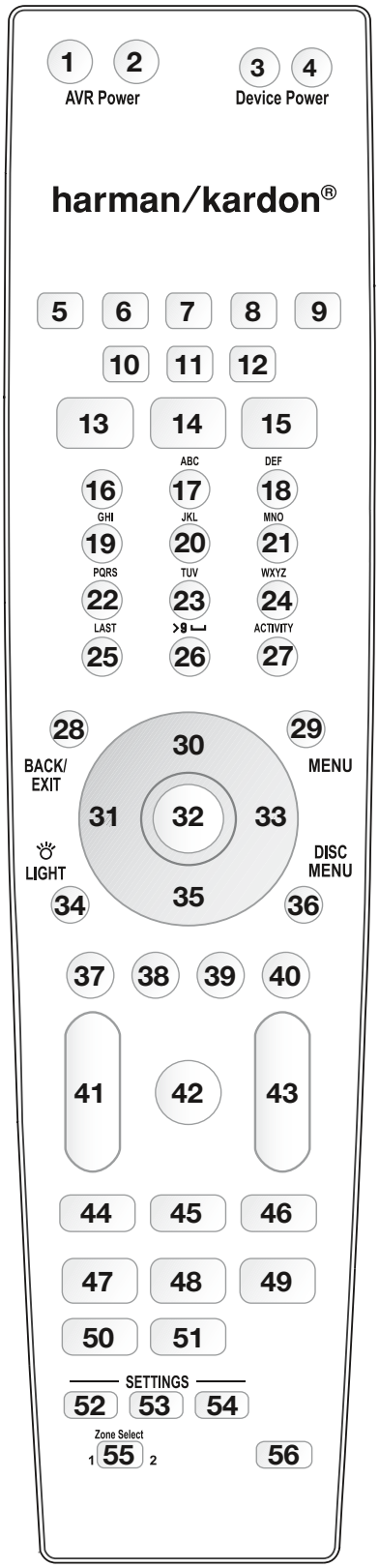


Figure 40 – Remote Control Function List Reference

Refer to the numbered buttons in Figure 40 when using the Function List.

Table A13 – Remote Control Function List

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

Media Server					AUX				
DMC1000	TV	The Bridge	Cable/SAT	Game	CD	HDTV	PVD	TiVo	VCR
AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On	AVR Power On
AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off	AVR Power Off
On	Power On	Power On	Power On	Play	Power On	Power On	Power On	Power On	Power On
Off	Power Off	Power Off	Power Off	Stop	Power Off	Power Off	Power Off	Power Off	Power Off
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio	Radio
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel	Input Sel
Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects	Audio Effects
Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes	Video Modes
Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes	Surround Modes
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
	Prev. Ch	Last	Prev. Ch	Enter		Prev. Ch	Instant Replay	Enter/Last	
0	0	0	0	0	0	0	0	0	0
Activity	Activity	Activity	Activity	Activity	Activity	Activity	Activity	Activity	Activity
Back		Back/Exit	Bypass	Clear		Exit/Cancel	Exit	Exit	Cancel
Menu	Menu	Menu	Menu	Start		Menu	Menu	Menu	Menu
Up	Up	Up	Up	Up		Up	Up	Up	Up
Left	Left	Left	Left	Left		Left	Left	Left	Left
Enter	OK	OK	OK	Select		Enter	Setup	Select	Enter
Right	Right	Right	Right	Right		Right	Right	Right	Right
Light	Light	Light	Light	Light	Light	Light	Light	Light	Light
Down	Down	Down	Down	Down		Down	Down	Down	Down
Disc Menu	OSD		OSD	DVD Menu		OSD	AV	TiVo	OSD
Angle			Guide	●	Open/Close	Caption	Mark	Window	
Subtitle			PPV	■	Random Play	Fav. Ch	Repeat	Live TV	
Audio			Fav. Ch	▲	Repeat	MTS	Jump Up	Slow	
Zoom			Music	X	Intro Scan	Aspect	Jump Down	Skip	
AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +	AVR Volume +
AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –	AVR Volume –
AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute	AVR Mute
	Channel Up	Page Up	Channel Up	Scan Up	(+10)	Channel Up	Channel Up	Channel Up	Channel Up
	Channel Down	Page Down	Channel Down	Scan Down	Disc Skip	Channel Down	Channel Down	Channel Down	Channel Down
Previous		Previous		Slow Down	Skip Down	Back	Last Clip	Thumb Down	Scan Down
Pause		Pause		Pause	Pause	Pause	Pause	Pause	Pause
Next Step		Next		Slow Up	Skip Up	Replay	Next Clip	Thumb Up	Scan Up
Rew ◀◀		Rew ◀◀		Prev.	R. Search	Rew ◀◀	Rew ◀◀	Rew ◀◀	Rew ◀◀
Play ▶		Play ▶		Play ▶	Play ▶	Play ▶	Play ▶	Play ▶	Play ▶
FF ▶▶		FF ▶▶		Next	F. Search	FF ▶▶	FF ▶▶	FF ▶▶	FF ▶▶
Record				Subtitle	Time	Record	Record	Record	Record
Stop		Stop		Stop	Stop	Stop	Stop	Stop	Stop
AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup	AVR Sel and Setup
Info Settings	Info Settings	Info Settings	Info Settings	Info Settings	Info Settings	Info Settings	Info Settings	Info Settings	Info Settings
Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep
Zone Select	Zone Select	Zone Select			Sleep	Sleep	Sleep	Sleep	Sleep
Learn	Learn	Learn	Learn	Learn	Learn	Learn	Learn	Learn	Learn

Refer to Tables A14 through A24 when programming the codes for your components into the remote.

Table A14 – Remote Control Product Codes: TV

TV Manufacturer/Brand	Setup Code Number
ADMIRAL	192
ANAM	045 106 109 112 122
AOC	037 122 123 128
AUDIOVOX	012
BLAUPUNKT	084
BROKSONIC	205 206
CITIZEN	045 123 128 132
CONTEC	045
CRAIG	045 157 158 159
CROWN	045 132
CURTIS MATHES	123 128 132
DAEWOO	045 087 102 105 106 108 111 114 116 119 127 128 132
DAYTRON	128 132
DYNATECH	063
DYNEX	014
ELECTROHOME	115 132
EMERSON	045 123 128 132 139 157 158 159 162 205
FUJITSU	041 042
funai	045
FUTURETECH	045
GE	029 087 121 123 128 133 145 159 163
GRUNDIG	193
HALL MARK	128
HARMAN KARDON	201
HITACHI	123 128 132 144 147
HYTEK	016
INKEL	120
JC PENNEY	115 123 128 132 145
JENSEN	019
JVC	079 087 134
KEC	045
KLH	006
KTV	045 123 132 162
LG/GOLDSTAR	002 013 101 110 122 128 132
LLOYTRON	172 173
LODGENET	069
LXI	077 145 148
MAGNAVOX	030 040 123 128 132 145 148
MARANTZ	115 123 148
MEMOREX	069 128
METZ	084
MGA	115 123 128
MITSUBISHI	077 115 123 128 160 167 168
MTC	175 176
NATIONAL	148 177 179 180 181 182
NEC	010 115 121 123 125
OLEVIA	007
OPTONICA	077
ORION	207 208 209 210 211
PANASONIC	087 148 169
PHILCO	045 115 123 128 132 148
PHILIPS	033 034 035 036 123 128 132 145 148
PIONEER	024 123 128
POLAROID	003 004 005 006 043
PORTLAND	128 132
PROSCAN	133
PROTON	008 059 122 128 132 165
QUASAR	032 087
RADIO SHACK	045 128 132 180 196 197
RCA	021 115 123 128 133 145 161 163
REALISTIC	045 167 196
RUNCO	044 046 152 153
SAMPO	059 123 128
SAMSUNG	020 022 124 128 132 145
SANYO	026 054
SCOTT	045 128 132
SEARS	128 132 145
SHARP	077 128 132
SIEMENS	084
SIGNATURE	069
SONY	028 031 117 130 136 194 212
SOUNDESIGN	045 128
SYLVANIA	025 123 128 145 148
SYMPHONIC	184
TANDY	077
TATUNG	063
TECHNICS	181
TECHWOOD	128
TEKNIKA	045 069 115 123 128 132
TELERENT	069
TERA	156
THOMSON	190 191
TIVO	051 052 and See Table A24
TMK	128
TOSHIBA	063 129 202
TOTEVISION	132
VIDEO CONCEPTS	160
VIDTECH	128
VIEWSONIC	011 038 039 047
VIZIO	001 002
WARDS	069 128 132 148
WESTINGHOUSE	017 018 023
YAMAHA	123 128
YORK	128
ZENITH	069 090

Table A15 – Remote Control Product Codes: AUX-HDTV

TV Manufacturer/Brand	Setup Code Number
APEX	614 616
DISH NETWORK	612
LG	604
MAGNAVOX	607 608 609 610 611
MOTOROLA	605
RCA	601 612
SAMSUNG	603
TATUNG	618
TIVO	See Table A24
ZENITH	602 606 619

Table A16 – Remote Control Product Codes: AUX-VCR

VCR Manufacturer/Brand	Setup Code Number
AIWA	340
AKAI	348 408 409 426
AUDIO DYNAMICS	318 348
BROKSONIC	410 447
CANON	435 440
CAPEHART	394
CITIZEN	434
CRAIG	345 416
DAEWOO	317 394 404
DAYTRON	394
DBX	318 348
DYNATECH	340
EMERSON	313 340 342 410 412
FISHER	317
FUNAI	340
GE	376 395 424
HARMAN KARDON	302 303 318 349
HITACHI	340 348
JC PENNEY	318 345
JENSEN	348
JVC	318 348 411 432
KENWOOD	320 348
LG/GOLDSTAR	318 407
LLOYD	340
LXI	320 340
MAGNAVOX	340
MARANTZ	318
MEMOREX	317 320 340 352 353 354 376 442
MGA	349
MITSUBISHI	349 431
MULTITECH	340
NAD	439
NATIONAL	440
NEC	318 348
NORDMENDE	348

OPTIMUS	459
ORION	447
PANASONIC	425 450 467 472
PHILCO	340
PHILIPS	340 375
PORTLAND	394
PULSAR	376
QUASAR	301 425
RADIO SHACK	355 434 440 442 458 459
RCA	395 424 425 457 472
REALISTIC	317 320 340 345 459
SAMSUNG	345 351 395 405 409
SANSUI	348 416 447
SANYO	317 320
SCOTT	410 412
SEARS	317 320
SHARP	429 456
SONY	380 429
SOUNDESIGN	340
SYLVANIA	340
SYMPHONIC	340
TANDY	317 340
TEAC	340 348
TEKNIKA	340
THOMAS	340
TIVO	See Table A24
TMK	313
TOSHIBA	412 455
TOTEVISION	345
UNITECH	345
VECTOR RESEARCH	318
VIDEO CONCEPTS	318 340
VIDEOSONIC	345
WARDS	340 345 412
YAMAHA	318 340 348
ZENITH	340 350 376 383

Table A17 – Remote Control Product Codes: AUX-CD

CD Manufacturer/Brand	Setup Code Number
ADCOM	063 069
AIWA	072 111 118 156 170
AKAI	050 177 184
AUDIO TECHNICA	053
AUDIOACCESS	125
AUDIOFILE	211
BSR	044
CALIFORNIA AUDIO	109
CAPETRONIC	070
CARRERA	087
CARVER	136 140 141 143 144 145 185 186
CASIO	117 166
CLARINETTE	166
DENON	187 188 213
EMERSON	052 093 108
FISHER	055 095
FUNAI	126
GE	164
HAITAI	099 214
HARMAN KARDON	001 002 025 054 190
HITACHI	093
INKEL	216
JC PENNEY	098 147
JENSEN	153
JVC	176 195 196
KENWOOD	030 062 078 079 148 151 176 178 181
LG/GOLDSTAR	016 087
LOTTE	108
LUXMAN	077 102
LXI	164
MAGNAVOX	039 113
MARANTZ	058 084 191 192 193
MCINTOSH	194
MCS	080 098
MITSUMI	152
MODULAIRE	166
NAD	013 074 197 198
NAKAMICHI	199 200 201
NEC	069
NIKKO	053 055
ONKYO	037 038 045 046 171 175 202 203
OPTIMUS	065 089 091 092 099 104 212
PANASONIC	075 109 119 158 183 204
PHILIPS	039 138 149 209
PIONEER	071 094 100 112 123 131 161 162 215
PROTON	210
RADIO SHACK	126 166 213
RCA	024 081 093 150
REALISTIC	058 093 095 104 105 108 164 166
SANSUI	047 081 134 157 172
SANYO	033 082 095
SCOTT	108
SHARP	058 105 114 151 159 167 180 181
SHERWOOD	003 041 058 105 133
SONY	103 115 116 118 132 139 163 205 206 207 208 212 217
SOUNDSTREAM	124
SYMPHONIC	059 110
TAEKWANG	177
TEAC	011 058 085 086 106 107 110 121 137 146 154
THETA DIGITAL	039
TOSHIBA	013 074 097 151 155 173
VECTOR RESEARCH	087
VICTOR	120 130
WARDS	095
YAMAHA	019 031 053 061 135 169
YORK	166

Table A18 – Remote Control Product Codes: DVD

DVD Manufacturer/Brand	Setup Code Number
APEX DIGITAL	061
DENON	019 020 051
GE	003 004
HARMAN KARDON	001 002
JVC	006
LG/GOLDSTAR	005 010 055 064 066
MAGNAVOX	056
MARANTZ	059
MITSUBISHI	023
NAD	062
ONKYO	009 048
PANASONIC	008 024 030 044
PHILIPS	016 056
PIONEER	018 027 041 065
PROCEED	060
PROSCAN	003 004
RCA	003 004
SAMSUNG	017 053 054
SHARP	028
SONY	011 012 015 043 045
THOMSON	003 004
TOSHIBA	009 058 067
YAMAHA	030 063
ZENITH	005 055 064
STARCOM	002 011 163
STARGATE	120
TANDY	024
TELECAPATION	028
TEXSCAN	036
TFC	122
TIVO	029 030 and See Table A24
TOCOM	170 205
UNITED CABLE	011
UNIVERSAL	033 034 039 042 113
VIDEOWAY	124 211
VIEWSTAR	019 025 053 086 089 190
ZENITH	065 125 211 219

Table A22 – Remote Control Product Codes: Media Server

Manufacturer/Brand	Setup Code Number
APPLE	008 009
BEYOND	003
ESCIENT (FIREBALL)	004 005 006 007
HARMAN KARDON	001 002
MICROSOFT	003
REQUEST	010

Table A23 – Remote Control Product Codes: AUX-Cable/SAT Recorder (PVR)

Manufacturer/Brand	Setup Code Number
DAEWOO	701 704
ECHOSTAR	714 715 716
EXPRESSVU	714
HUGHES	717 727
HYUNDAI	718
PANASONIC	710 723
PHILIPS	711 717 724 727
PROSCAN	719
RCA	719 727
REPLAYTV	708 710 712 725 726
SONICBLUE	710 712
SONY	707 713 720 721 722 723 724

Table A24 – Remote Control Product Codes: AUX- TiVo

Manufacturer/Brand	Setup Code Number
COMCAST TIVO	808
COX TIVO	808
DIRECTV TIVO	806
HUMAX TIVO	803
Nero LiquidTV TIVO	805
PIONEER TIVO	801
TIVO HD XL DVR	807
TIVO HD DVR	804
TIVO SERIES2™ DT DVR	802
TOSHIBA TIVO	803

Audio Section

Stereo Mode, Continuous Average Power (FTC)
AVR 360: 70 Watts per channel, 20Hz - 20 kHz
AVR 460: 75 Watts per channel, 20Hz - 20 kHz
@ < 0.07% THD, both channels driven into 8 ohms

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

Front L&R channels:
AVR 360: 55 Watts per channel
AVR 460: 60 Watts per channel
@ < 0.07% THD, 20Hz–20kHz into 8 ohms

Center channel:
AVR 360: 55 Watts
AVR 460: 60 Watts
@ < 0.07% THD, 20Hz–20kHz into 8 ohms

Surround (L & R Side, Back) channels:
AVR 360: 55 Watts per channel
AVR 460: 60 Watts per channel
@ < 0.07% THD, 20Hz–20kHz into 8 ohms

AVR 360: 130 watts per channel into 6 ohms
AVR 460: 140 watts per channel into 6 ohms
@1kHz, <1% THD, one channel driven.

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

FM Tuner Section

Frequency Range	87.5–108.0MHz
Usable Sensitivity	IHF 1.3µV/13.2dBf
Signal-to-Noise Ratio	Mono/Stereo 70/68dB (DIN)
Distortion	Mono/Stereo 0.2/0.3%
Stereo Separation	40dB @ 1kHz
Selectivity	±400kHz: 70dB
Image Rejection	80dB
IF Rejection	90dB

AM Tuner Section

Frequency Range	522–1710kHz
Signal-to-Noise Ratio	45dB
Usable Sensitivity	Loop 500µV
Distortion	1kHz, 50% Mod 0.8%
Selectivity	±9kHz, 30dB

Please register your AVR 460/AVR 360 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.

Video Section

Television Format	PAL
Input Level/Impedance	1Vp-p/75 ohms
Output Level/Impedance	1Vp-p/75 ohms
Video Frequency Response (Composite)	10Hz–8MHz (–3dB)
Video Frequency Response (Component Video)	10Hz–100MHz (–3dB)
HDMI™	Version 1.3a with 10-bit Deep Color

General

Power Requirement	AC 230-240V/50Hz
Power Consumption	AVR 360: Standby < 1W, 540W maximum
	AVR 460: Standby < 1W, 890W maximum
	(7 channels driven)
Dimensions (Max)	
Width	440mm
Height	165mm
Depth	382mm
Weight net	AVR 360 : 13,4 kg
	AVR 460 : 13,5 kg

Depth measurement includes knobs, buttons and terminal connections.

Height measurement includes feet and chassis.

Features, specifications and appearance are subject to change without notice.

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Part No. CQX1A1431Z A