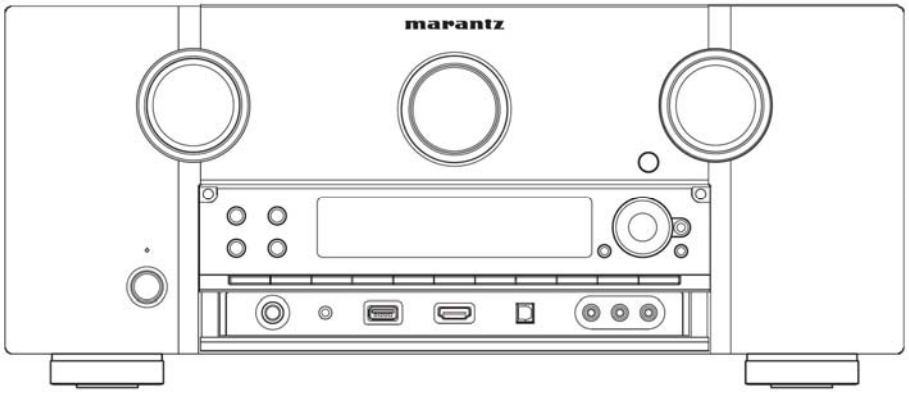
The Outlaws' Guide to the Marantz AV7005



Marantz
AV7005
7.1 Channel Pre-amp/Processor

Version 1.0

Important – How To Use This Guide

Thank you for purchasing the Marantz AV7005 surround sound processor. The AV7005 is a full-featured surround sound product that offers a wide array of features such as decoding for lossless audio formats, accurate video scaling, and automatic room correction technology. All of these provide great improvements in audio and video performance, increasing your enjoyment of music, television, and movies. However, these amazing technologies carry with them an inevitable side-effect: you have to set it all up and learn how to take advantage of the power and flexibility it offers before you can see and hear the full benefit of all of these new wonders.

What The Outlaws' Guide Won't Do

There are a number of details in the AV7005 User Guide that we have not reproduced in the Outlaws' Guide. If you need to find out how to set tuner presets or program the remote control to operate other devices, please refer to the AV7005 User Guide. That guide also contains additional details on the network sources offered by the AV7005.

What The Outlaws' Guide Will Do

That brings us to this guide. The Marantz AV7005 User Guide covers every bell, whistle, and sprocket under the AV7005's hood, but we felt that a supporting document from an Outlaw perspective would benefit our customers. Our purpose here is to provide a clear, detailed, and thorough explanation of how to connect, configure, and operate the AV7005 so that it can look and sound its best. If you want an explanation of what different menu settings do – not simply what settings are available – keep reading this guide. Some of you are seasoned 'philes when it comes to setting up a home theater. Some are veterans of the two-channel audio world, ready to make the move into surround and home theater. Still others are entirely new to the hobby. The home theater gurus will likely be able to fend for themselves, although we think there could still be a few useful tidbits here for them. For many, a surround processor like the AV7005 can be a daunting challenge for which a 128-page manual offers little reassurance. Our goal with this guide is to provide you with a convenient reference to help navigate the challenging path ahead. We hope that it will help you reach the end of that road quickly and smoothly, so you can focus on enjoying this addition to your home theater system. The other manual will remain a useful resource if you need it.

What You Will Find In The Outlaws' Guide

We will begin with a feature list to introduce the AV7005 and then explore the process of connecting the AV7005 to a typical home theater system. Following is a Quick Setup Guide to help steer users through their first contact with the AV7005's setup menus. We will also explore the different audio formats supported by the AV7005 and the listening modes that can be used in conjunction with them, followed by a reference (or a "roadmap") to the AV7005's setup menus. We are also including a section to introduce the different inputs offered by the AV7005, including network and USB sources. The last sections of the guide are an assortment of "Outlaw approved" tips and tricks and a troubleshooting checklist.

Table of Contents

AV7005 Features

The AV7005 surround processor incorporates support for the newest audio formats, room correction and equalization, video processing, and 3D video compatibility along with pre-amplifier outputs that allow it to be paired with a separate power amplifier. The result is a very powerful, flexible, and full-featured component with the technology to bring out the best in any source, display, or speaker system. It also offers the build quality and audio performance that has long been associated with the Marantz name. The AV7005's features include:

- **Full Suite of Dolby Decoding and Processing Modes**
  Dolby® Digital™, Dolby Digital EX™, Dolby Digital Plus™, Dolby® TrueHD™, Dolby Pro Logic IIx™, Dolby Pro Logic IIz™, Dolby Headphone™, Dolby Virtual Speaker™
- **Full Suite of DTS Decoding and Processing Modes**
  DTS®, DTS 96/24™, DTS-ES Discrete™, DTS-ES Matrix™, DTS-HD® High Resolution™, DTS-HD® Master Audio™, DTS Neo:6™, DTS Neural Surround™
- **192kHz/32-bit Analog Devices SHARC Digital-to-Analog Converters**
- **Audyssey MultEQ XT™ Room Correction**
- **Audyssey MultEQ Pro™ Calibration support**
- **Audyssey DynamicEQ™ Loudness Correction**
- **Audyssey Dynamic Volume®**
- **Audyssey DSX Dynamic Sound Expansion™**
- **Manual EQ**
  User-adjustable 9-band GEQs for each of seven full-range channels
- **6 HDMI Inputs**
  Each of the five rear-panel HDMI® inputs is assignable, and a sixth assignable HDMI input is available on the front panel. All six support HDMI version 1.4a. This includes support for bitstream input of Dolby Digital Plus, Dolby TrueHD, and DTS-HD High Resolution and Master Audio in addition to support for multi-channel PCM, DSD (SACDs), and legacy Dolby Digital and DTS bitstreams. On the video side there is 12-bit Deep Color™ support, 3D video compatibility, 1080p/24 pass-through support, and automatic lip sync correction.
- **2 HDMI Outputs**
  The AV7005 offers two HDMI outputs, allowing two separate HD displays (such as a plasma or LCD flat panel and a front projector) to be connected to the AV7005 without an external splitter. Only one output is active at a time. When in standby, the AV7005 can also pass-through an HDMI input to the display.
- **4 100MHz Component Video Inputs and 2 Component Video Outputs**
  Each of the four component video inputs are assignable. One component video output is assignable to either main or second zone monitor output.

- **Transcoding of analog video sources**
  Composite inputs can be transcoded to component video outputs.
- **HDMI upscaling of video sources**
  Video processing is provided by the Anchor Bay Technologies ABT2015. Any analog video input can be deinterlaced, scaled, and converted to the HDMI output at resolutions up to 720p, 1080i, and 1080p. HDMI video inputs can also be deinterlaced and scaled to those resolutions.
- **5 Digital Inputs and 1 Digital Output**
  Digital audio inputs and outputs include two coaxial inputs, two rear panel optical inputs, one front panel optical input, and one optical output. All five inputs are assignable.
- **Balanced and Unbalanced Pre-Amp Outputs**
  7.2 balanced (XLR) pre-amplifier outputs and 11.2 unbalanced (RCA) outputs.
- **7.1 Multichannel Analog Input**
  Multichannel input can be paired with any HDMI or component video input, or it can be set to use the previous video source.
- **Phono Input**
- **Multi-room Capability with Zone 2/Zone 3**
  Zones 2 and 3 can receive audio from any analog source and PCM stereo digital audio from any coaxial or optical digital audio source. Zone 2 can also receive video from composite and component video sources.
- **Ethernet port**
  The Ethernet port provides DLNA network support for playback of supported audio and video files that are stored on the network. Supported Internet services include Rhapsody, Napster, Pandora, and Flickr. It also allows the AV7005 to be controlled remotely via a web interface and supports firmware updates.
- **RS-232 port**
  The RS-232 port serves as control interface, allowing automation systems to connect to and control the processor.
- **AM/FM, HD Radio® tuner, and SIRIUS Ready™**
  In addition to AM and FM radio reception and 56 radio presets, the AV7005 includes an HD Radio tuner and provisions for SIRIUS Satellite Radio (SIRIUS XM Radio Inc.). SIRIUS XM subscription and antenna module are required (sold separately).
- **12V DC Triggers**
  Low-voltage DC triggers can be assigned to activate and deactivate depending on the selected input and zone.
- **IR Inputs and Outputs**
  IR distribution systems can be connected directly to the AV7005 using these inputs, allowing for easy control of the unit even when it is located remotely or concealed inside a closed cabinet.

Connecting Your AV7005

Perhaps the most daunting task in setting up a new home theater component is connecting it to the other components in your system. This is particularly true for a surround processor, as it is the hub through which virtually everything passes. The AV7005 User Manual offers examples for connecting typical components to the AV7005. We are going to do something similar here, but from a different perspective. This section will help you connect an AV7005 to a home theater system, starting with the video display and working back through the video signal path, then turning around and going from audio inputs back through audio outputs. Along the way, we will offer some pointers for audio and video record outputs and Zone 2/Zone 3 outputs. Near the end, we will touch on some miscellaneous connections such as triggers and antennas. We'll finish with a connection summary sheet that you can use to plan and document your connections.

Video Outputs

This is the last step in the signal path, but it is a good place to start because it will determine what connections to make from the source components. After all, the TV is where it all comes together, and we can't very well hook up an HDMI cable from your upscaling DVD player if your TV's best video input is a composite video jack. In the process of identifying the best video output connection for your system, we will define a series of five *Video Display Tiers* that will be used when connecting video inputs.

Most AV7005 owners will be connecting the processor to a high definition video display, so we will begin with the optimal video output connection for such a case. We call that case *Video Display Tier HDMI*, which applies to two situations: displays with an HDMI input, and those that use DVI with HDCP rather than HDMI. If the TV has a DVI input, check the TV's manual to determine if it supports HDCP (High-Definition Digital Copy Protection). Many TVs with DVI ports will label the ports as "DVI-HDCP" to make this clear, but even if the port isn't labeled as such it may still be compatible with HDCP. DVI ports with HDCP can be treated exactly the same as HDMI ports for our purposes.

Without HDCP, a display will be unable to work with HDCP protected source devices (HD cable and satellite receivers, upscaling DVD players, and HD-DVD and Blu-ray players), forcing us to exclude HDMI from our supported video input connections later. As a result, a DVI-equipped display that lacks HDCP will be our second classification: *Video Display Tier DVI (no HDCP)*.

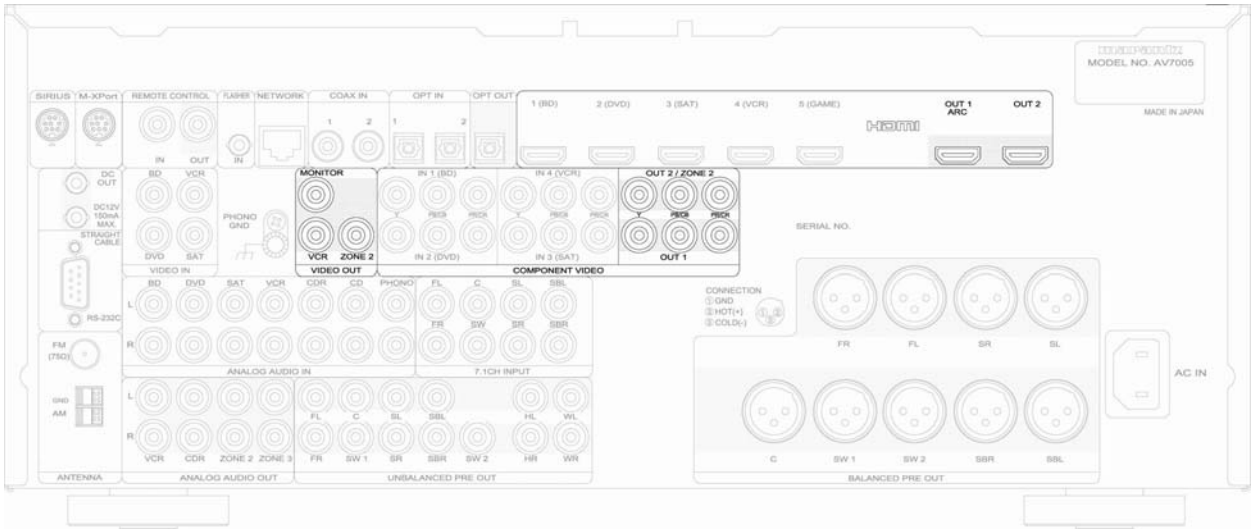
The third possible input type available on an HDTV is component video. Most displays will offer this input type, but you should only use it with the AV7005 if HDMI and DVI are not available. This is the last of the video display tiers that will support HD resolutions: *Video Display Tier HD-Component*.

Not everyone has a high definition display, and some AV7005 owners will be connecting to a standard definition TV. Even with standard definition displays, there are several

possible connections available. The preferred connection is component video, although because the display is not capable of supporting HD resolutions we have a separate category for this connection option: *Video Display Tier SD-Component*. The next best video connections will be S-video and composite video. Because the AV7005 lacks S-video switching, systems that have a TV with S-video or composite video inputs will be combined in the *Video Display Tier Composite*.

Identify which of the five Video Display Tiers described above applies to your display. The five are summarized below for your convenience:

Video Display Tiers
HDMI: HDTV with at least one HDMI input or DVI with HDCP input.
DVI (no HDCP): HDTV with at least one DVI input but no HDCP.
HD-Component: HDTV with component video input but no HDMI or DVI inputs.
SD-Component: Standard TV with component video input.
Composite: Standard TV with composite video input but no component input.



Video Output Connections

HDMI Video Display Tier
The *HDMI Video Display Tier* is the case for which the AV7005 was optimized. It is also in many ways the simplest to connect, both for the output and for the video and audio inputs that we will be looking at shortly. Connect an HDMI cable from the AV7005's HDMI Output 1 to the TV's HDMI input. If the TV's input is DVI with HDCP support, use an HDMI-to-DVI cable or an HDMI cable with an HDMI-to-DVI adapter to connect the AV7005's HDMI Output 1 to the TV's DVI input.

DVI (no HDCP) Video Display Tier
Some older displays and most data monitors include DVI inputs that lack HDCP, and this condition creates a unique case. The video output connection itself is straightforward. As with the DVI with HDCP output described in *HDMI Video Display Tier*, an HDMI-to-DVI cable or HDMI cable with HDMI-to-DVI adapter can be used to

connect the AV7005's HDMI Output 1 to the display's DVI input. We will address the video input limitations imposed by the lack of HDCP in the next section.

HD-Component Video Display Tier
For older HDTVs that lack either HDMI or DVI input, we will find ourselves in the *HD-Component Video Display Tier*. In this case, connect a component video cable from the AV7005's component video output 1 to the TV's component input. Make sure that the component input you use supports HD resolutions, as some HDTV's may designate one input for HD signals (often identified as 720p/1080i) and one input for SD signals (480i and 480p).

SD-Component Video Display Tier
The best connection type available to standard definition TVs is component video, bringing us to *SD-Component Video Display Tier*. If component video is available on your TV, connect the AV7005's component video output 1 to the TV's component input. This operates much like *Video Display Tier HD-Component* until we configure the video processing to disable deinterlacing at the component video output (see page 52 for the "i/p Scaler" setting).

Composite Video Display Tier
The *Composite Video Display Tier* applies to displays whose best input is composite video. In this case, connect the AV7005's composite video monitor output to the TV's composite input. Because the AV7005 lacks S-video connections, a TV whose best input is S-video should be included in this tier. We will address the video input limitations associated with this case in the next section.

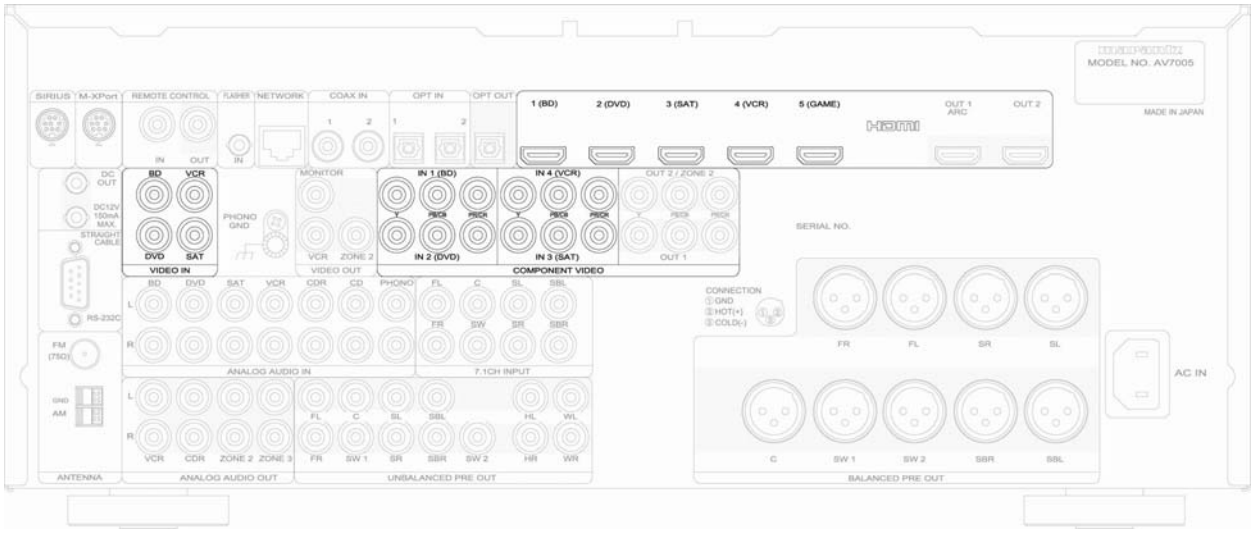
VCR Record Video Output
The AV7005 offers a composite video output for recording (the VCR record output). Connecting a recording device to the composite record output may require additional video input connections. We will address those near the end of the next section.

Second Zone Video Outputs
The AV7005's second zone offers two possible video outputs. One is a composite video output (labeled "Zone 2" on the rear panel), and the other is a component video output (labeled "Out 2/Zone 2"). Either can be useful for providing video as well as audio to a TV in a second location. If either the second zone composite video output or the second zone component output is connected to a display, there may be some additional video input connections required. As with the record output, we will explore those in the next section. If the component output is used, a menu setting adjustment is required so that this output is linked to the second zone rather than the main zone. This setting is described on page 57.

Video Inputs

Today's home theaters can include numerous video sources: DVD players; DVRs; cable, satellite, and other set-top boxes; game consoles; HD-DVD and Blu-ray players; network media players; and even the occasional VCR. The first step in connecting these sources is to take an inventory of your source components and determine where each component fits in relation to the *Video Display Tier* that we identified above. Use the descriptions below to determine which of the four *Video Source Tiers* each component belongs in.

Video Source Tiers
HDMI: Any source with an HDMI or DVI-HDCP output.
DVI: Any source with a DVI output that lacks HDCP.
Component: Any source whose best video output is component.
Composite: Any source whose best video output is composite (such as VCRs). Sources whose best video output is S-video will also be included in this tier.



Video Input Connections

HDMI Video Display Tier
For displays that offer an HDMI input, the decision-making process becomes simple. Use the best possible video output offered by every source you have. For those *HDMI* sources, connect a cable from its HDMI output to one of the AV7005's five rear HDMI inputs. *DVI* sources (with or without HDCP) should be treated in the same manner, with either a DVI-to-HDMI cable or a DVI-to-HDMI adapter and an HDMI cable connecting the source to one of the AV7005's HDMI inputs. For *Component* sources, connect the component output to one of the AV7005's four component inputs. *Composite* sources should be connected to the composite video input of one of the four AV inputs (BD, DVD, VCR, or SAT). The AV7005's video processing section will transcode and scale all video sources to the single HDMI output connected in the Video Output section.

DVI (no HDCP) Video Display Tier
The DVI (no HDCP) scenario is similar to the HDMI, with one difference. Sources that are *HDMI* (offering either an HDMI output or a DVI-HDCP output) cannot be connected using that output because they will not provide a video signal without being connected to an HDCP-equipped display. Sources such as this must instead use the next best video output. Typically, that will be a component video output. Sources that are *DVI* (offering a DVI output that does not include HDCP) can be connected using a DVI-to-HDMI cable or a DVI-to-HDMI adapter and an HDMI cable to connect to an HDMI input on the AV7005. The *Component* and *Composite* sources will be connected just as described in the *HDMI Video Display Tier* scenario.

HD-Component and SD-Component Video Display Tiers
The *HD-Component* and *SD-Component* tiers mark the point at which any dealings with digital video cease. *HDMI* and *DVI* sources cannot be connected to the AV7005's HDMI inputs. They must instead use the next best video connection, most likely component video. The *Component* and *Composite* sources will be connected just as described in the *HDMI Video Display Tier* scenario. For the *SD-Component Video Display Tier*, any sources that support HD resolutions (such as Blu-ray Disc players and some game consoles) will need to be set to output a 480i video signal.

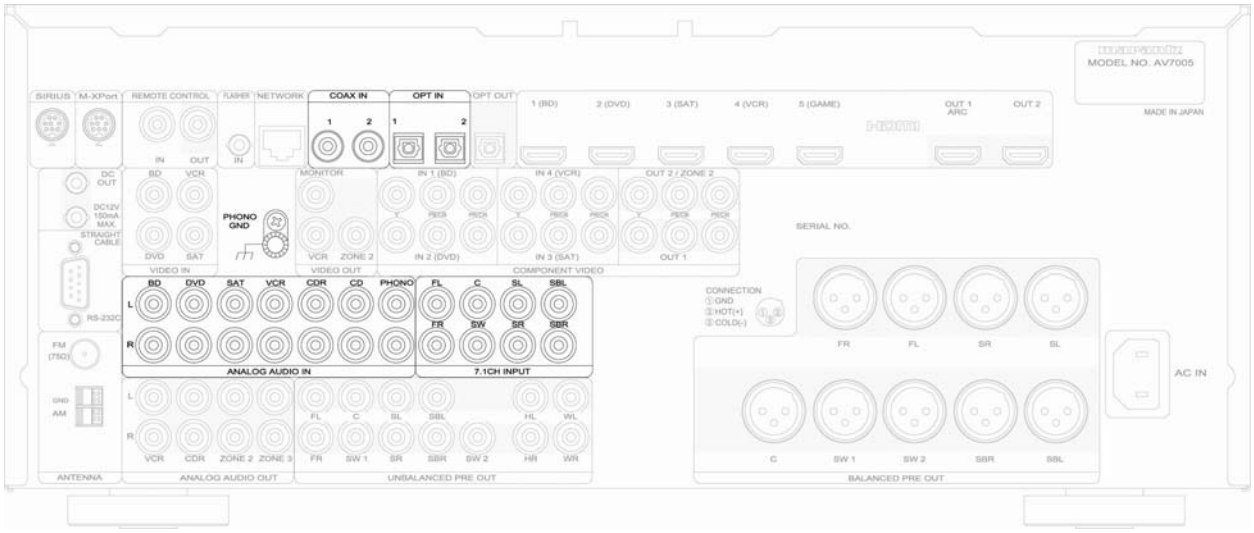
Composite Video Display Tiers
This final display tier is not likely to be common among AV7005 owners. For those rare cases, however, all sources (regardless of their capabilities) must be connected using composite video cable to one of the four rear AV inputs or the front AV input.

Record Video Input
The record video output is limited to composite video. No transcoding is supported in conjunction with this output, so any sources that you intend to record from will need to be connected composite video as well. Some sources may already be connected using a superior video connection. In those cases, the composite video connection will be ignored for the main display output, but will be used by the record output.

Zone 2 Video Inputs
The Zone 2 output can be either composite video or component video, as described in the previous section. No transcoding is supported for either of these outputs. This means that if the composite video Zone 2 output is used, any sources that will need to send video to Zone 2 will need to be connected using composite video as well. Likewise, if component video output is used for Zone 2, any sources sending video to Zone 2 will need to be connected using component video.

Audio Inputs

As video is only half of home theater, completing the video connections brings us roughly half-way through our wiring. The next step is audio. We have four possible options for delivering audio to the AV7005: HDMI, coaxial/optical digital, multichannel analog, and stereo analog.



Audio Input Connections (Digital and Analog)

For the *HDMI* sources previously connected under Video Inputs, the audio will typically already be covered. This is because HDMI was developed to provide a single-cable connection for both audio and video signals, and almost all HDMI sources make use of this capability.

The AV7005 offers one additional HDMI audio input feature. HDMI Out 1 supports ARC (Audio Return Channel). A compatible HDMI v1.4 display, such as some new 3D HDTVs, can send audio back to the AV7005 through the same HDMI cable that delivers video to the display. See pages 52 and 53 for details on setting up this feature. ARC cannot be used with HDMI Out 2.

For our other video sources (*DVI*, *Component*, and *Composite*) and for audio-only sources, we need to make a separate audio connection. Typically, a coaxial or optical digital audio connection will be the first choice. Sources that will normally offer this connection include DVD players, cable and satellite receivers (excluding analog cable boxes), network media players, and recent game consoles (Xbox360, Playstation2, and Playstation3). Some components will only offer an optical output (the game consoles, for example), but many others will offer both. Because the AV7005's coaxial and optical inputs can be assigned to any input, there is no restriction on which is used. The only limitation is the quantity available: two coaxial inputs, two rear panel optical inputs, and one front panel optical input. Sources that have only coaxial or only optical digital output should get first priority for the inputs, after which sources that offer both outputs can use the remaining inputs.

Some sources will offer a multichannel analog audio output. This is typically offered by DVD players that support DVD-Audio and/or SACD (both high-resolution audio formats that can only be output as multichannel analog or via HDMI) and by some Blu-ray players. With the AV7005's support for HDMI and for decoding of all of these formats, there should be no need to use 7.1 channel analog output with Blu-ray players. DVD-Audio can be output over HDMI for players that include an HDMI v1.1 output; otherwise, you will need to connect the 7.1 channel analog output of your player to the AV7005's 7.1 channel analog input. SACD can be output over HDMI v1.2, but without an HDMI v1.2 output (or an HDMI v1.1 player that can decode SACD's to multichannel PCM) you will need to connect the player's 7.1 channel analog output to the AV7005. For 5.1 analog outputs, connect the surround left and right to the surround left and right channels of the multichannel analog input, leaving the surround back inputs empty. See page 28 to configure the 7.1 channel analog input.

There are some sources that do not offer digital audio output or a multichannel analog output. These would include VCRs, cassette decks, older CD players, LaserDisc players, camcorders, portable music players, and the Nintendo Wii. For these devices, connect the left (white) and right (red) jacks from the source's output to the left and right jacks of a free input.

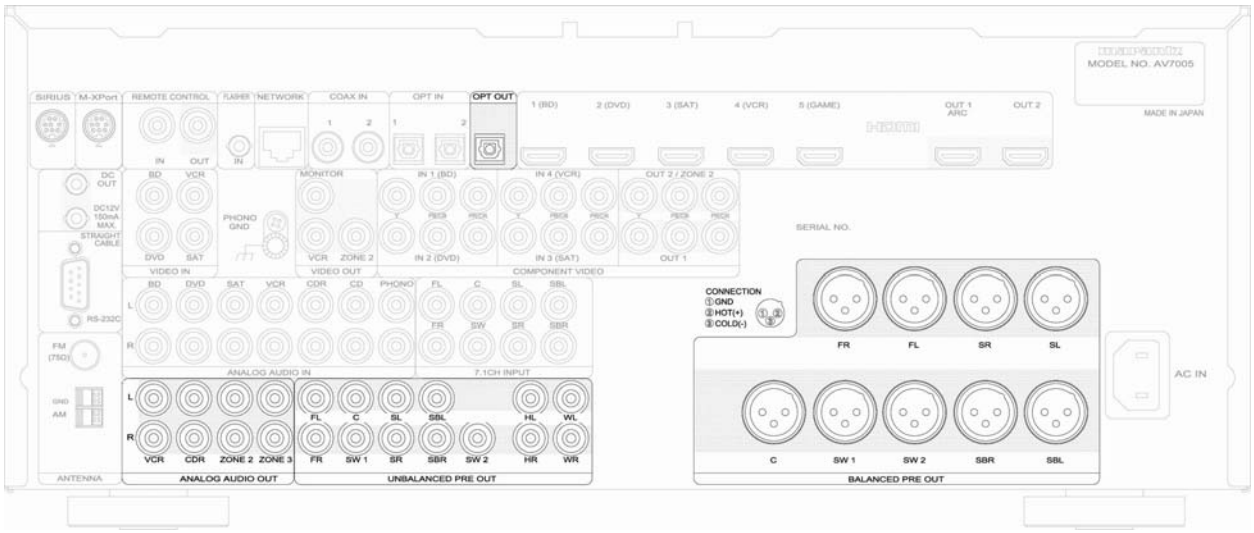
The last analog-only source that may be connected to the AV7005 is a turntable. The AV7005 includes a phono input with MM phono pre-amp section. The only device that should ever be connected to the Phono analog input is a turntable that uses a MM (moving magnet) cartridge. There is also a ground connection on the rear panel (above the VCR analog audio input) that should be used with the Phono input.

In the next section, we will touch on audio outputs for recording and for Zones 2 and 3. In order for sources to make use of the analog record output, they must have stereo analog connections to the AV7005. To use the optical digital record output, sources must have an optical or coaxial digital audio input connected and assigned. The Zone outputs can work with both stereo analog inputs and optical or coaxial digital inputs that provide a PCM stereo digital signal. Dolby Digital and DTS audio from digital inputs and digital audio of any type from HDMI inputs are not available in Zones 2 and 3; for sources that will be using these digital audio inputs and used in Zones 2 or 3, also connect a stereo analog audio input to the AV7005. See page 25 for information about assigning digital inputs.

Audio Outputs

The AV7005 offers an array of audio outputs. The most important are the main multichannel pre-amp outputs, which will be connected to a separate power amplifier and subwoofer. We will also discuss the record outputs and Zone 2/Zone 3 outputs.

The AV7005 offers two sets of pre-amp outputs: unbalanced (RCA jacks) and balanced (XLR jacks). Many power amplifiers will have only unbalanced inputs, in which case you will use the unbalanced connections. Balanced connections, if available at the power amplifier, are typically recommended for longer wiring runs as they are better at rejecting interference. Use either one or the other, but not both, to connect the AV7005 to your amplifier. Your speakers will then connect to the amplifier; refer to your amplifier's manual for any special instructions. For a system with only one back surround speaker, connect that amplifier channel to the SURR BACK L output.

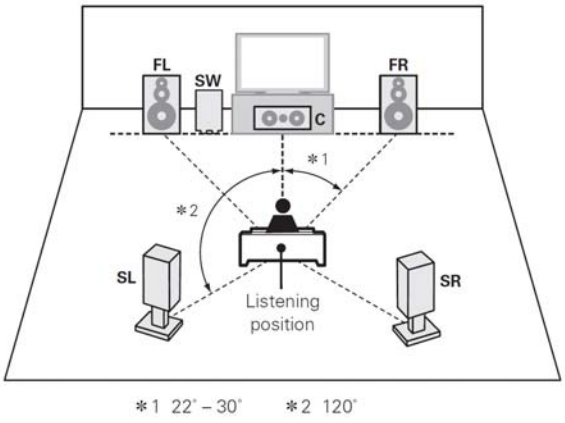


Audio Output Connections

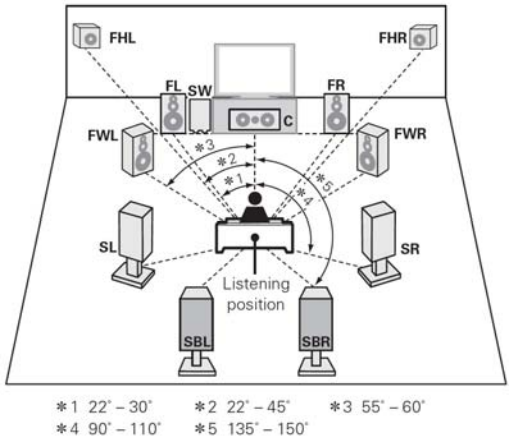
The surround back channel pre-amp outputs can also be used for other purposes if the system does not have surround back speakers connected. These outputs can be used as Zone 2 or Zone 3 pre-amp outputs, or they can be configured as "Speaker C" outputs. The Speaker C option is intended for use in bi-amping front speakers. If any of these alternative uses are planned, see page 22 for the associated menu settings.

The AV7005 supports Pro Logic IIz and Audyssey DSX. These two modes expand multichannel audio beyond the seven full-range channels we are used to. Both modes offer a pair of Front Height channels (speakers located above the front speakers). Audyssey DSX also offers a pair of Front Wide channels, located between the front and side surround speakers. The AV7005 provides unbalanced pre-amp outputs for all four of these speakers, and these speakers can be configured along with the seven traditional channels (fronts, center, side surrounds, and back surrounds). Because the AV7005 is a 7.1-channel processor, however, it is only possible to operate seven speakers at a time. As a result, surround back speakers will not be active when

Pro Logic IIz or Audyssey DSX is in use, and Audyssey DSX can provide either front height or front wide channels at any given time (not both at once). The diagrams below show recommended speaker placement for a 5.1 system and the various 7.1 systems.



Recommended 5.1 Speaker Placement



Recommended 7.1 Speaker Placement (Including Front Height and Front Wide)

Both the unbalanced and balanced pre-amp output groups include a pair of subwoofer outputs. If your subwoofer offers a balanced (XLR) input, that is the preferred connection to the sub. Otherwise, use the unbalanced (RCA) output to connect the subwoofer. Both outputs provide the same signal, so if you have only one subwoofer you can connect it to either the SW1 or SW2 output.

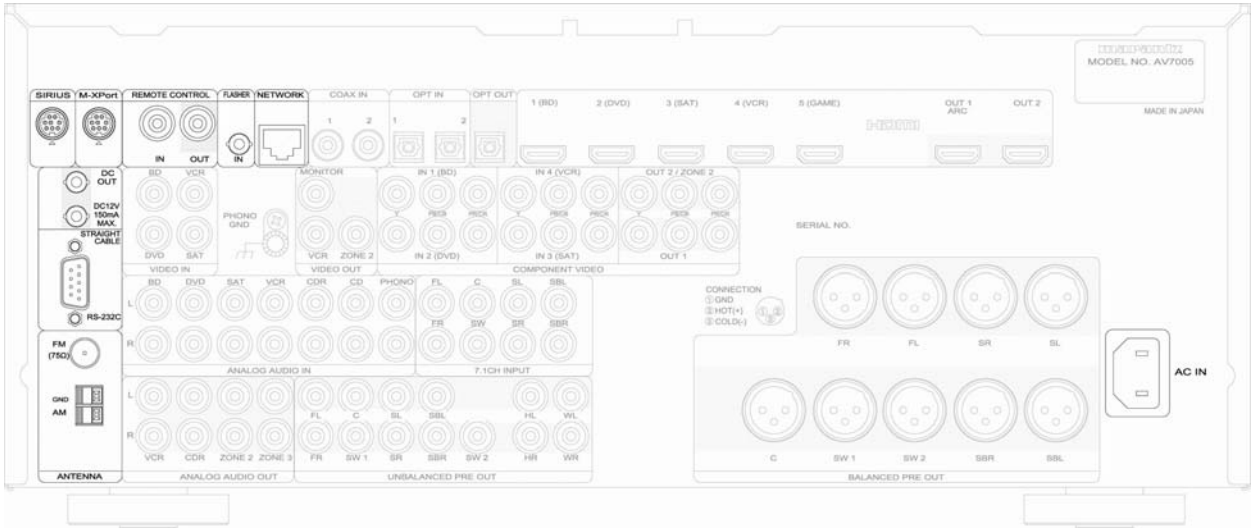
If you connected the video portion of the VCR record output, connect the left/right audio record output to the same device. The CDR input also offers a similar audio record output, which can be connected to an audio recording device (cassette deck, CD-R/RW deck, or similar). Both of these record outputs work only with analog stereo inputs. Digital inputs are not available at these outputs.

The optical digital audio output can be used as a record output to a device with a digital record input, such as a CD recorder. This output will only work with inputs that have a digital audio connection (coaxial or optical).

The last audio outputs available are the Zone 2 and Zone 3 outputs. We discussed the limitations associated with these outputs in the previous section: they can only be used with inputs that have stereo analog connections made or inputs that use optical/coaxial digital connections and provide PCM stereo. These outputs can be used to connect to a separate power amplifier that powers speakers in Zone 2 or Zone 3.

Other Connections

Additional rear panel connections include 12V triggers, IR input and output, Marantz remote control inputs and outputs, an RS-232 port, an assortment of radio antennas or satellite radio modules (FM, AM, and Sirius), and a network connection. Front connections include a calibration microphone jack, headphone jack, and USB port. The radio antennas are a good place to start with these final connections. The AV7005 comes with both AM and FM antennas. These can be connected to the AM and FM antenna connections near the top right corner of the rear panel. The SIRIUS connection can be used with the onboard SIRIUS receiver, but it is sold separately and a subscription to the satellite radio service is required.



Other Rear Panel Connections

The AV7005 offers a pair of 12VDC triggers labeled DC OUT 1 and 2. These triggers use a mono 1/8" mini-plug and can be connected to equipment such as power amplifiers to turn them on and off simultaneously with the AV7005, power conditioners to switch outlets, and accessories such as motorized blinds and projection screens to lower them when certain inputs are selected and raise them when those inputs are no longer active. See page 23 for instructions on configuring these trigger outputs.

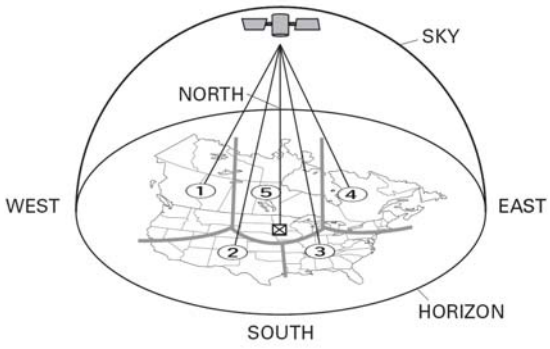
The IR input is compatible with multiroom kits and IR distribution systems such as those made by Niles and Xantech. Connect a mono mini-plug from an IR sensor or IR connecting block to the rear panel IR input to allow the AV7005 to receive IR signals from other rooms. This can also be used for the main zone when the AV7005 is located out of the line-of-sight (inside a piece of furniture or in a remote equipment rack). If you intend to connect the remote control output described below, connect your IR input signal to the "Remote Control In" port instead of the "Flasher In" port.

The IR remote control output can be connected to IR emitters that are attached to the IR sensors on other components or to similar remote control inputs on other components. This output receives the same signals that are sent to the "Remote Control In" port.

The network jack can be connected to a computer network using a network cable (Category 5 or higher) or to a wireless network using a wireless bridge. This connection allows the AV7005 to access files stored on a DLNA-compatible server, to access Internet services, and to be controlled via a web browser.

The RS-232 port provides a control connection for automation systems such as those manufactured by Crestron and AMX. It can be connected to a PC or an automation system using a standard serial cable (not a null modem cable) to provide a control interface. See page 54 for a note on a Standby Mode setting that affects RS-232 control.

The AM and FM antennas provided with the AV7005 can be connected to the Antenna inputs at the lower left corner of the rear panel. A SIRIUS antenna can be connected to the SIRIUS port on the upper left corner, but the antenna will need to be aimed properly. The map below provides aiming instructions for the US and Canada. In each case, point the antenna toward the sky in the direction listed.

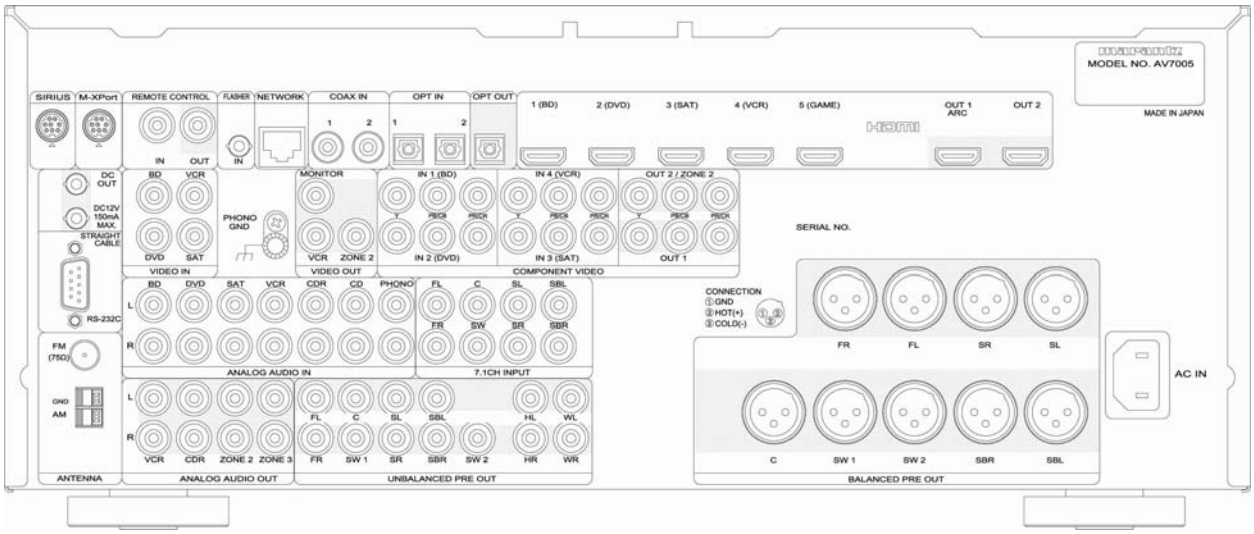


Area 1: Point the antenna east, northeast, or southeast, either through a window or outside.
Area 2: Point the antenna north or northeast, either through a window or outside.
Area 3: Point the antenna north or northwest, either through a window or outside.
Area 4: Point the antenna west, northwest, or southwest, either through a window or outside.
Area 5: Put the antenna outside and point it straight up. The antenna cannot be used indoors

Next to the SIRIUS antenna connection is a port labeled "M-XPort." This port works with Marantz's RX101 wireless Bluetooth receiver. The RX101 can be connected to this port. Once connected, it can be used to play back audio from Bluetooth devices such as computers or cell phones. It can also be used to with a compatible remote control. If used with a remote control, follow the instructions on page 53 of the AV7005 User Guide to enable the RX101 as a remote receiver.

Connection Summary Sheet

The chart on the following page allows a convenient record of the connections that have been made. For each input, there are spaces to record the associated source component, which video inputs are connected (HDMI, component, and/or composite), and which audio inputs are connected (coaxial, optical, multichannel analog, or stereo analog).



Rear Panel Diagram

CONNECTION SUMMARY SHEET

BD Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Composite: □
Stereo Analog: □

DVD Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Composite: □
Stereo Analog: □

VCR Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Composite: □
Stereo Analog: □

SAT Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Composite: □
Stereo Analog: □

AUX1 Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Composite: □
Stereo Analog: □

TV Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
HDMI ARC: □

Game Input

Source: _____
HDMI: 1 2 3 4 5 6
Component: 1 2 3 4
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □

CD Input

Source: _____
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Stereo Analog: □

CDR Input

Source: _____
Optical: 1 2
Coaxial: 1 2
7.1CH Input: □
Stereo Analog: □

Phono Input

Source: _____
Stereo Analog: □ *

Zone 2 Output

Zone: _____
Stereo Analog Out: □
Composite Video: □
Component Video: □

Zone 3 Output

Zone: _____
Stereo Analog Out: □

Monitor Output

HDMI: 1 2
Component: 1 2
Composite: □
HDMI 1 Display: _____
HDMI 2 Display: _____

Pre-Amplifier Outputs

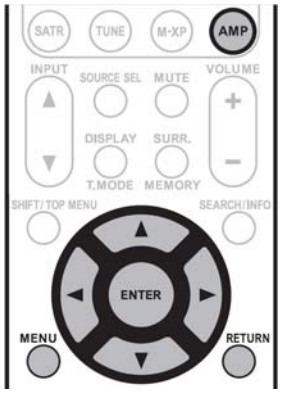
Left:	RCA	XLR	Surr. Left:	RCA	XLR	Left Height:	□
Right:	RCA	XLR	Surr. Right:	RCA	XLR	Right Height:	□
Center:	RCA	XLR	S.Back Left:	RCA	XLR	Left Wide:	□
Sub 1:	RCA	XLR		6.1		Right Wide:	□
Sub 2:	RCA	XLR	S.Back Right:	RCA	XLR		

* Use with MM phono cartridges only.

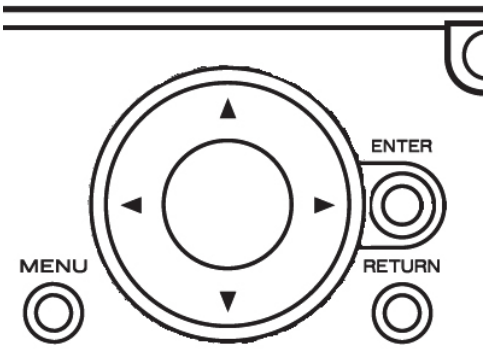
Quick Setup Guide

Both the Marantz User Manual for the AV7005 and the "Roadmap to the Setup Menus" section of this Guide provide detailed descriptions of the unit's menus and how to configure them. This section will walk you through the basic settings required to quickly setup the AV7005 and provide an introduction to the processor's menus.

Before entering the AV7005's setup menu, please take a moment to familiarize yourself with the remote control ands the buttons shown below. The main remote has an LCD screen at the top. Directly below that are the power buttons, while the other controls you will need for navigating the setup menus are located near the middle of the remote. These controls are also available on the front panel.



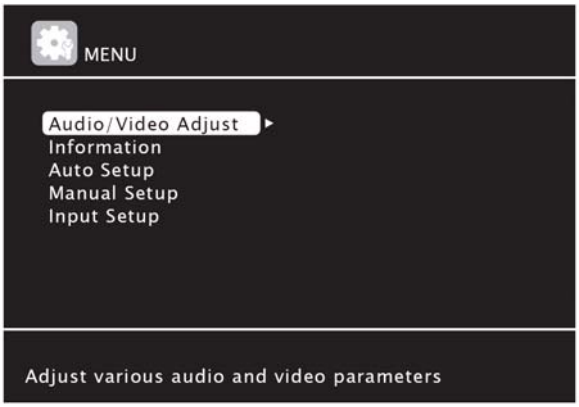
Menu Navigation Controls – Remote



Menu Navigation Controls – Front Panel

Button	Function
On	Switches the unit from Standby to On.
Standby	Switches the unit from On to Standby.
AMP	Sets the remote to control the AV7005.
Menu	Activates the setup menu. When in the setup menu, this button will exit the menu.
Up / Down	Use ▲ and ▼ to scroll through menu entries.
Left / Right	Use ◄ and ► to adjust settings for the highlighted entry.
Enter	Select the highlighted item. Necessary for entering sub-menus, adjusting some settings, and accepting an option for those settings.
Return	Return to the previous menu screen.

Start by turning on your video display and setting it to the input that is connected to the AV7005's monitor output (as discussed on pages 6 through 8 and noted in the Connections Summary Sheet on page 18). Then press the "AMP" button so the remote will operate the AV7005 and press "ON" to turn on the AV7005. You can now navigate the menus on your video display using the buttons listed above. The menus also appear on the front panel, one line at a time. The first menu that appears on screen will be the Main Menu.

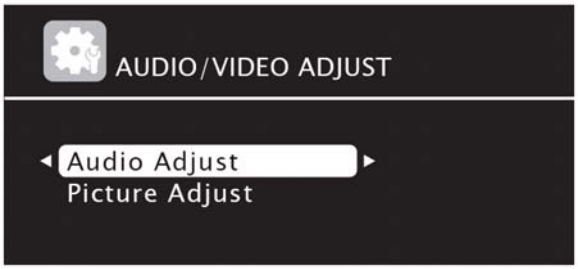


Main Menu

Once you are in the main menu (as pictured above), you can begin the setup process. We will touch on each of the five menus in this section, focused only on items required for initial setup of the AV7005. Details on any menu settings not discussed here can be found later in the Roadmap to the Setup Menus section. If you have connected the AV7005 to your home network, you may want to look at the "Web Control Interface" tip on page 71 for an alternate way to access and adjust the setup menus.

Audio/Video Adjust

This first menu has two parts, one for audio settings and one for video settings.



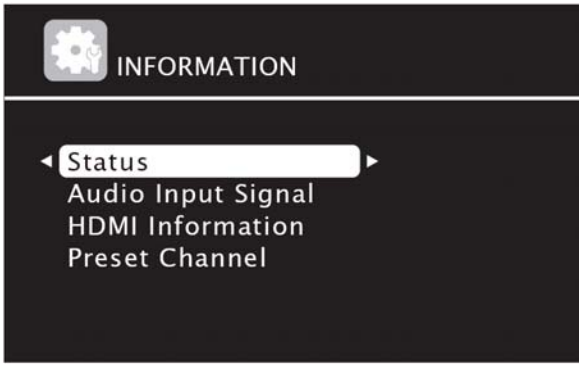
Audio/Video Adjust Menu

The *Audio Adjust* sub-menu addresses audio controls relating to dynamic range compression, tone controls, Pro Logic II Music, Pro Logic IIz, DTS Neo:6 Music, Audyssey DSX, manual equalization, and audio delay. Most of these settings are global (meaning they apply to all inputs), but the audio delay setting is stored separately for each input. We will discuss all of these settings in detail starting on page 41. For initial setup, this menu can be ignored.

The *Picture Adjust* sub-menu provides adjustments for contrast, brightness, chroma level, hue, digital noise reduction (DNR), and edge enhancement. These settings are stored separately for each video input that has video processing enabled. We will discuss these controls starting on page 44.

Information

The Information menu offers details about the current state of the AV7005, including its inputs and its outputs.



Information Menu

There are no adjustments to be made in this menu. The wealth of information provided here can be useful in troubleshooting problems that may arise and verifying that other components in the system are configured and operating correctly, and we will discuss each section's reports starting on page 46.

Auto Setup

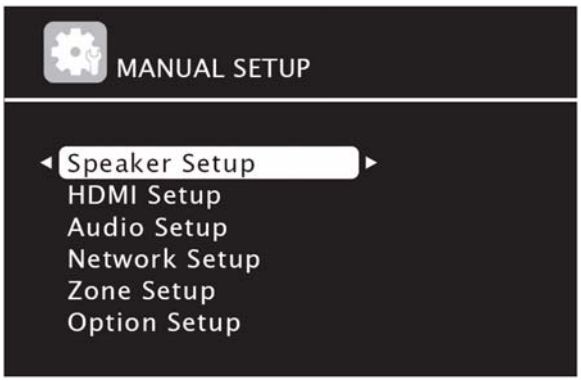
The Auto Setup menu can be used to start the Audyssey MultEQ XT automatic setup and to review the results of a previous Audyssey measurement.

Auto Setup Menu

We don't need to start the Audyssey measurement process right now, so we will return to this subject on page 29. We will also discuss the Parameter Check sub-menu on page 48.

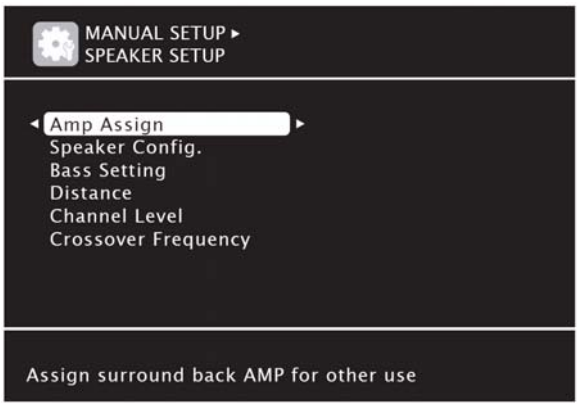
Manual Setup

The Manual Setup menu should be your first stop when configuring the AV7005. It provides access to settings for speakers, HDMI connections, audio connections, the Ethernet port, Zone 2 and Zone 3, and various other settings.



Manual Setup Menu

We postponed running the automatic setup in part so that we could visit the *Speaker Setup* sub-menu first. Many of the settings in this sub-menu will be set automatically later, but it is still beneficial to look at this sub-menu briefly.



Speaker Setup Sub-Menu

Of the menu settings included in this sub-menu, only Amp Assign will need attention at this time.

Amp Assign has four options: NORMAL, ZONE2, ZONE3, and SPKR-C. It can be left on the default of NORMAL unless the SURR. BACK speaker outputs were connected to either Zone 2, Zone 3, or used to bi-amp the front speakers. If the SURR. BACK outputs are connected to Zone 2, select ZONE2; of they are connected to Zone 3, select ZONE3. If the SURR. BACK outputs and FRONT outputs are both connected to the front speakers in a bi-amp configuration, select SPKR-C.

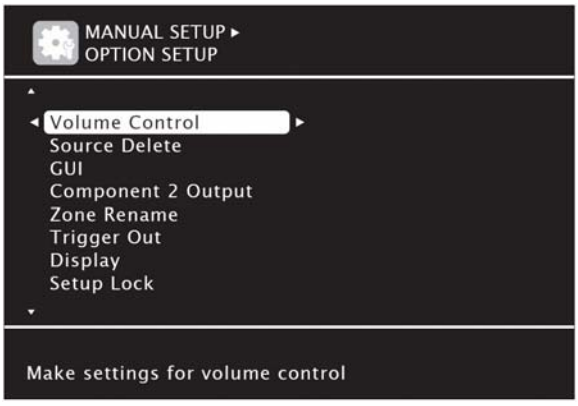
The other settings in the *Speaker Setup* sub-menu will be discussed in Roadmap to the Setup Menus and can be disregarded for now. The Audyssey MultEQ XT automatic setup will provide recommended settings for most of them.

The second sub-menu is *HDMI Setup*, which covers a number of settings related to HDMI input and output. These can generally be left on their default settings, which we will discuss in more detail later. The menu can be skipped for now.

The *Audio Setup* sub-menu has two options: 7.1ch input subwoofer level and EQ customization. We will address both of these on page 53. For now, we will skip both of these.

If you are connecting the AV7005 to your home network, you will need to enter the *Network Setup* sub-menu to enable that connection. In most cases, leaving DHCP set to the default value ("ON") will suffice. If you need to manually specify an IP address, gateway, or DNS server(s), please see page 54 for more details on this sub-menu. That page will also explain how to enable network support when the AV7005 is in standby mode, how to customize the AV7005's network name, how to set the AV7005 to notify you when updated firmware is available, and how to set up a Rhapsody or Napster account.

The *Zone Setup* sub-menu provides access to some audio adjustments such as tone controls, left/right levels, volume control, and muting for the Zone 2 and Zone 3 outputs. If you connected the Zone 2 or Zone 3 outputs when installing the AV7005, you will want to check out our detailed discussion of these controls starting on page 55. For the initial setup, this sub-menu can be skipped.



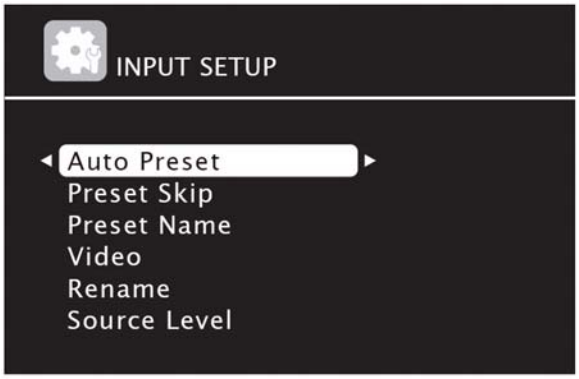
Option Setup Sub-Menu

One of the most extensive sub-menus in the AV7005 is the *Option Setup* sub-menu. This menu covers volume control, source selection, the graphical user interface (GUI), Component 2 output, zone renaming, 12V trigger output, front panel display, setup lock, maintenance mode, and firmware updates. We will cover many of these in the *Roadmap to the Setup Menu* starting on page 56. While we are here, though, we'll look at Trigger Out because it is frequently used to turn on the AV7005's separate power amps.

The first option in the Trigger Out sub-menu is Trigger 1, which is set to "On" by default for the main zone, zone 2, and zone 3 trigger out settings. To use the trigger to power on a separate amplifier for either zone, select the zone (Main Zone, Zone 2, or Zone 3) and use the ◄ and ► buttons to change it between "---" and "On." A second option under Trigger Out is provided for Trigger 2, with the same adjustments available.

Input Setup

In this last section, we will define which digital and analog connections the AV7005 uses with the different *Inputs* available to it. From this point forward, an *Input* refers to one of the ten inputs listed on the Connection Summary Sheet: BD, DVD, VCR, SAT, GAME, AUX1, TV, CD, CD-R, and PHONO. If we refer to any of the cables plugged into the AV7005, we will identify them as *connections*. The screen shot below shows six of the twelve possible menu options, but the specific options listed will vary depending on which input is active.

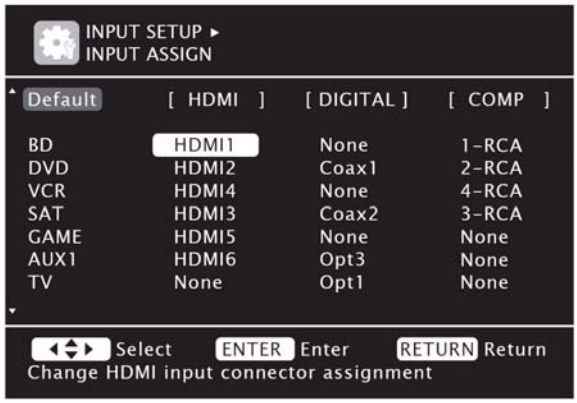


Input Setup Menu

There are twelve possible sub-menus under *Input Setup*, depending on which input is selected. Many of them relate to the radio tuner, such as *Auto Preset*, *Preset Skip*, *Parental Lock*, *Antenna Aiming*, and *Preset Name*. We will discuss those sub-menus and the *Rename*, Source *Level*, *Playback Mode*, and *Still Picture* sub-menus in the Roadmap to the Setup Menu later in this guide.

Our first stop upon entering the *Input Setup* menu is the *Input Assign* sub-menu. In this menu, you can select video and audio inputs for seven different inputs and audio inputs for three inputs. You will want to refer to the Connection Summary Sheet on page 18 when adjusting this menu. For each of the first seven inputs (BD, DVD, VCR, SAT, GAME, AUX1, and TV), each of the three columns (HDMI, Digital, and Comp) can be adjusted. The Digital column can be adjusted for the CD input, CD-R input, and SIRIUS tuner input.

Each of the three columns in the *Input Assign* sub-menu relates to either an audio or video connection. Use the navigation controls on the remote control or front panel to highlight an entry in the table, press the "ENTER" button to select that entry, and use the ◄ and ► buttons to scroll through available options for that entry. Press "ENTER" again to save the selected setting.



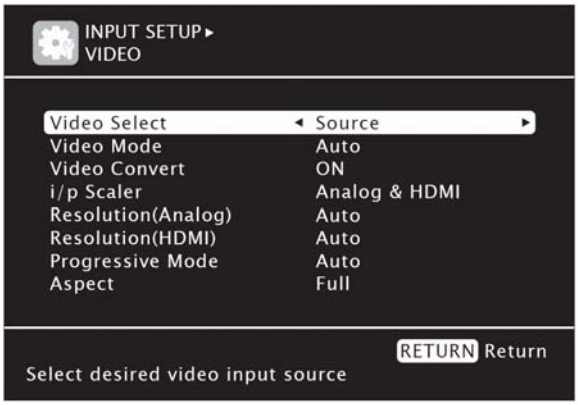
Input Assign sub-menu

The *HDMI* column allows the user to select from the six HDMI connections. Note that each HDMI connection may be assigned to only one input.

The *Digital* column allows the user to select from the five digital audio connections. Connections Opt1 and Opt2 are optical ports on the rear panel, connection Opt3 is the front panel optical port, and connections C1 and C2 are coaxial ports. See the Connection Summary Sheet to determine which inputs are using digital audio connections. In some cases, users may prefer to use an HDMI connection for video only and to use a separate digital audio connection for audio. In that case, a digital connection can be set here and the HDMI setting will still be used for video. We will select the desired audio source later in the *Input Mode* sub-menu. If no digital audio connection is required for an input, select "None".

The *Comp.* column allows users to select from the four component video connections. As with the HDMI connections, each of the four component video connections can be assigned to only one input.

When finished in the *Input Assign* sub-menu, press "RETURN" on the remote to return to the *Input Setup* menu. Once there, scroll down one spot to the *Video* sub-menu and press "ENTER" to select it.



Video sub-menu

The *Video* sub-menu provides control over the video switching and video processing features of the AV7005. Unlike the *Input Assign*, the *Video* sub-menu settings are applied only to whatever input was active when you entered the setup menu. Because you cannot change the active input without leaving the setup menu, it will be necessary to exit the setup menu, change the input, and re-enter the setup menu to make the desired adjustments for all connected inputs. The *Input Mode* sub-menu (discussed after this sub-menu, starting on page 28) behaves the same way, so we recommend making all desired adjustments to both sub-menus before exiting the setup menu and changing inputs.

The first item in this sub-menu is Video Select. This allows the video from a different input to be used by an input along with the input's assigned audio source. Video Select can be set to "Source" (the default, which uses the input's assigned video connection) or one of the other video inputs (BD, DVD, VCR, SAT, GAME, AUX1, and TV). Any inputs that were assigned to an HDMI connection in the *Input Assign* sub-menu will be excluded from that list, and the TV and GAME inputs will only appear if they have a component video connection assigned to them. As a result, it is likely that not all video inputs will be available. In most cases, "Source" will be the appropriate setting. We will describe some scenarios using other settings in Tips and Tricks on page 71.

The second item in the *Video* menu is Video Mode. This setting determines how each input's video signal is processed. The options are "Auto," "Movie," and "Game." In most cases, the default setting of "Auto" is appropriate. For game consoles, the "Game" mode can be selected.

One of the greatest advantages of video switching is the ability to convert video signals from different input types to a single output. The Video Convert setting is applied separately to each video input. When set to "Off" the AV7005 does not convert the video signal. A component video input would only be available at the component video output, or a composite video input would only be available at the composite video output. In most cases, this should be left on the default setting of "On" to allow video conversion.

The i/p Scaler setting has four options: "Analog", "Analog&HDMI", "HDMI", and "Off". The options are described below.

- Analog: Any analog signal (component video and composite video) is processed through the AV7005's video scaler to the output resolution selected later in this menu.
- Analog&HDMI: Both analog (component video and composite video) and HDMI video signals are processed through the AV7005's video scaler to the output resolution selected later in this menu. This option is only available if an HDMI connection is assigned to the input.
- HDMI: HDMI video signals are processed through the AV7005's video scaler to the output resolution selected later in this menu. This option is only available if an HDMI connection is assigned to the input.

- Off: No video processing takes place. Composite video inputs are available at the composite video outputs only and component video inputs are available at the component video output only at the original input resolution. This option should be selected when the source provides superior video processing. It will allow the video signal to bypass the AV7005's video processing.

For most cases, the setting "Analog&HDMI" will be appropriate if it is available. If you are using sources that already have excellent video processing (such as some Blu-ray Disc players) or if you have an HDTV with excellent video processing or an external video processor connected to the AV7005's HDMI output, you can use the "Off" setting to avoid applying extra video processing in the AV7005.

The "Resolution" settings define the resolution of the video signal provided by the AV7005's monitor output and can be adjusted any time that the i/p Scaler setting enables the video processor (Analog, Analog&HDMI, or HDMI settings). There are two separate settings available. "Resolution (Analog)" is applied to analog video inputs (composite and component video), and "Resolution (HDMI)" is applied to HDMI digital video inputs. Which of these options is available will depend on the "i/p Scaler" setting above. The available settings are listed and described below.

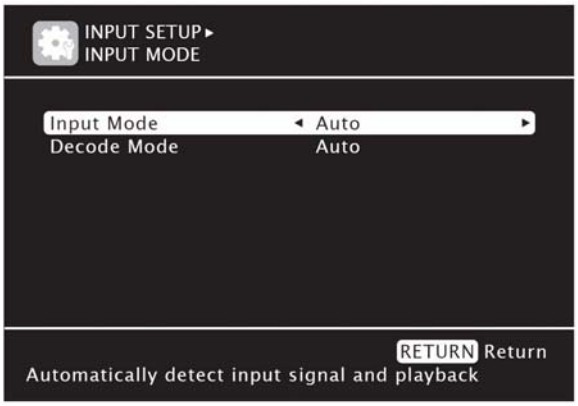
- Auto: The AV7005 will select an output resolution based on information provided by your HDTV over the HDMI connection.
- 480p/576p: All video inputs will be output as either 480p (for NTSC systems) or 576p (for PAL systems). NTSC is the standard for televisions in North America.
- 1080i: All video inputs will be converted to 1080i.
- 720p: All video inputs will be converted to 720p.
- 1080p: All video inputs will be converted to 1080p.

The preferred Resolution setting will be the setting closest to the HDTV's native resolution (such as 720p for 1366x768 displays, 1080i for most CRT HDTVs, and 1080i or 1080p for 1920x1080 displays). If you are unsure of the best resolution for your TV, you can use the "Auto" setting and allow the AV7005 to request a preferred resolution from your TV.

The next setting in the *Video* sub-menu is Progressive Mode, and it determines how the AV7005's video processor will deinterlace 480i, 576i, or 1080i video signals. Like Resolution, this setting is only available if the i/p Scaler setting has enabled video processing. The default setting of Auto is recommended. Video1 is suitable for sources that were originally recorded as video while Video2 is suitable for video and film sources.

The final setting on the *Video* sub-menu is Aspect, which sets the output video aspect ratio. The options are "Full," which outputs video at the 16:9 aspect ratio (the widescreen ratio used by HDTVs), and "Normal," which outputs video at the 4:3 aspect ratio (the traditional "square" TV shape). This setting is available any time the i/p Scaler setting has enabled video processing.

After you have finished adjusting the *Video* sub-menu for all of your video sources, you can return to the *Input Setup* menu. The next sub-menu is typically going to be *Input Mode*. This menu has two settings that determine what audio connection type and decoding will be available for each input. As with *Video*, this sub-menu applies to the active input. To adjust it for other inputs, you must exit the setup menu.



Input Mode sub-menu

First is the Input Mode setting, which determines what analog or digital audio connection the input will use. The default value of "Auto" will automatically detect which digital input signal is available, and if none is available it will use stereo analog audio. If Mode is set to "HDMI" for an input, then that input will use the HDMI connection specified in the *Input Assign* sub-menu. If Mode is set to "Digital" for an input, then that input will use the specified coaxial or optical digital audio connection. If Mode is set to "Analog" for an input, then that input will use its associated stereo analog connection. Lastly, there is an option for 7.1CH IN, which will associate the 7.1 channel analog audio connection with that input. For sources that use the HDMI connection for video but a digital or analog connection for audio, this setting will allow the AV7005 to get audio from the correct connection. In that case, select "Digital" to use the coaxial or optical connection assigned to the input, "Analog" to use the associated stereo analog audio connection, or "7.1CH IN" to use the multichannel analog audio input.

If you assign the 7.1 channel analog connection to an input, you will need to verify that the source is configured to provide bass management, as the AV7005 will not apply bass management, room correction, or surround processing for this input.

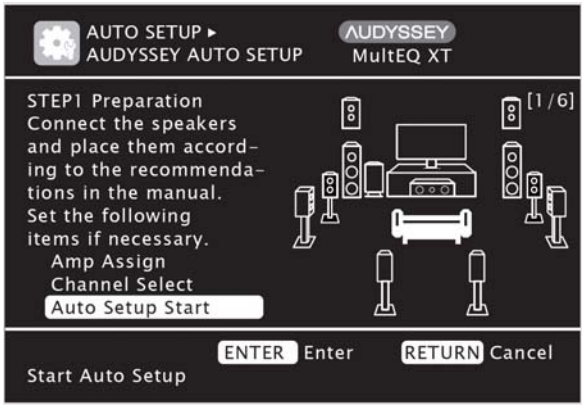
The Decode Mode setting should normally be left to the default of Auto. The other options of PCM and DTS will restrict the input to only decode PCM or DTS input signals, which is rarely desirable.

Before leaving the *Input Setup* menu, you may want to edit the names used for the AV7005's inputs. This can be done in the *Rename* menu, but it is not essential for operating the receiver. We will talk in detail about this on page 61. We will also address the *Source Level*, *Playback Mode*, and *Still Picture* sub-menus in the Roadmap to the Setup Menu section. For now, we will move on to the final step in the Quick Setup process: the automatic speaker setup. To do that, press "RETURN" on the remote to return to the AV7005's main menu.

Audyssey MultEQ XT Automatic Setup

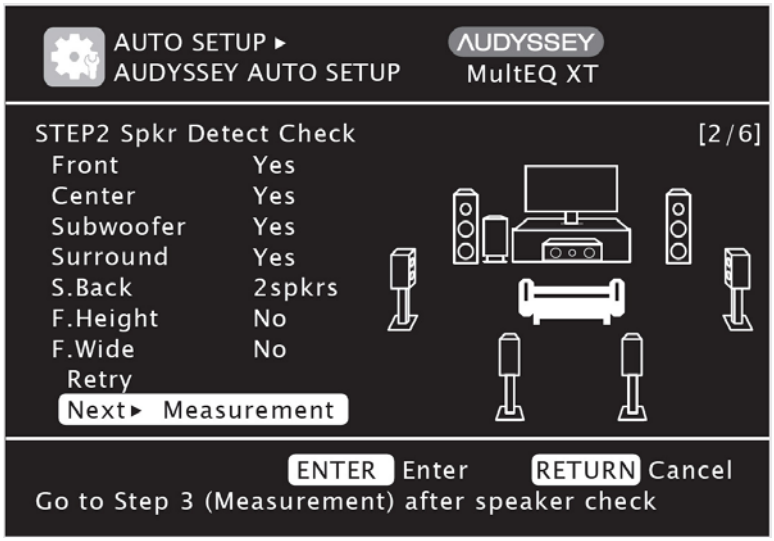
After making an initial pass through the AV7005's setup menus, it is a good time to run the automatic setup using Audyssey MultEQ XT. The Audyssey MultEQ XT software included on the AV7005 represents a powerful solution for room correction. The included microphone can be placed in up to eight listening positions throughout the room, and the AV7005 will use measurements from those locations to determine speaker distance, channel trim, and bass management settings and to apply equalization to all channels to correct for room effects.

Pages 8 through 11 of the AV7005 User Manual provide a detailed description of the process of running the Audyssey MultEQ XT setup. Here, we will offer a quick overview of the process. First, place the microphone in the center of the listening area at ear height. If you have a tripod available, the microphone can be mounted to it and easily positioned at the correct height. If you don't have access to a tripod, some other support should be used to position the microphone. Do not hold the microphone, as your body will interfere with the measurements. Once that is done, plug the microphone into the front panel SETUP MIC port. The following menu will appear when you do that.



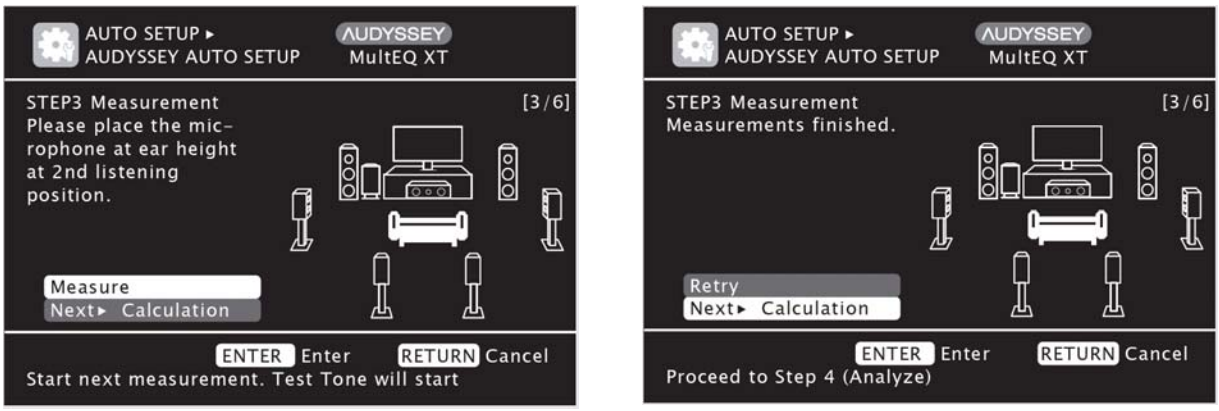
Audyssey MultEQ XT Setup – Auto Setup Start Screen

The first two options provide some general speaker settings that are similar to settings we addressed earlier in the manual setup menus. First is "Amp Assign," which determines how the surround back pre-amp outputs are assigned. The options are "Normal," "ZONE2," "ZONE3," or "SPKR-C" based on how the surround back outputs are configured. See page 22 if you are unsure what to set this to. The "Channel Select" option allows the subwoofer, surround back, front height, and front wide speakers to be included in the Audyssey measurements or skipped. In each case, if no speakers are connected to the associated outputs, the setting can be highlighted and changed from "Measure" to "Skip" so Audyssey will not attempt to find those speakers. If "Amp Assign" is set to anything other than "Normal," the surround back, front height, and front wide speakers will be disabled. In the "Channel Select" sub-menu. Once you have reviewed those two sub-menus, you can select "Start" and follow the on-screen prompts to begin the process of running Audyssey Auto Setup, being careful to minimize ambient noise during the measurement process. The first step will be a speaker detection check. When it is complete, the results will appear on screen.



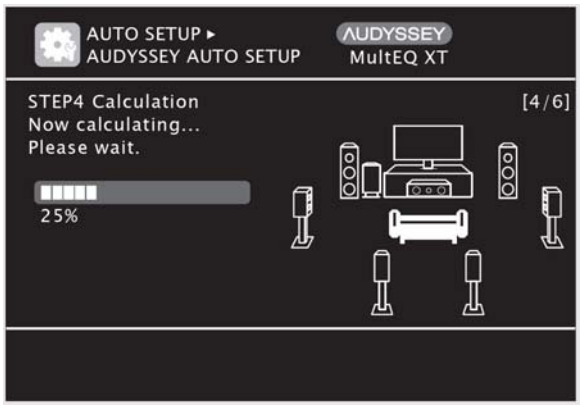
Audyssey MultEQ XT Setup – Additional Mic Positions

Review the results on the first Speaker Detection screen. If any speakers are missing, you should cancel setup and verify wiring and power connections at speakers and amplifiers before re-starting Audyssey MultEQ XT auto setup.If the results are correct, select "Next" to begin taking measurements. The AV7005 will then begin taking detailed measurements at the first listening position.

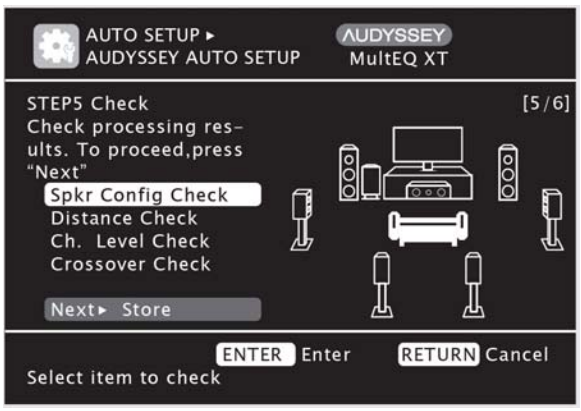


Audyssey MultEQ XT Measurements

When measurements of the first location are completed, the on-screen display will offer you two options. The first is to move the microphone to a second listening position and measure again. If you do that, select "Measure" and the test tones will resume. After the second location and every location thereafter, you can select to either continue with additional locations or finish the measurements ("Next") and start calculating. You can take measurements at up to eight different locations; we recommend taking measurements in at least six. After the eighth location, the only options available will be "Retry" and "Next." Once you have finished taking all of the measurements, select "Next" to continue on to the next step. The AV7005 will then begin calculating the results of its measurements.

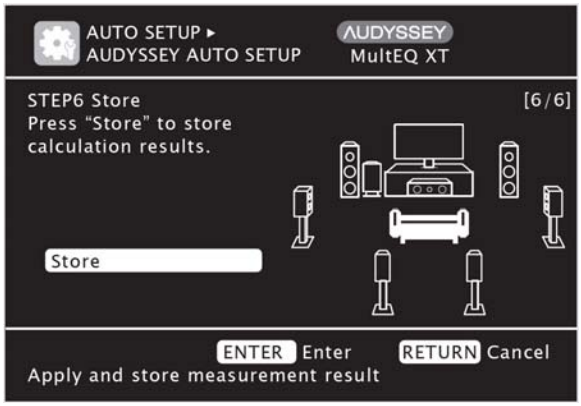


Audyssey MultEQ XT Calculating



Audyssey MultEQ XT Results

After the AV7005 completes its calculations, you will have a chance to verify the results for speaker configuration, speaker distances, channel levels, and crossover settings. Note that subwoofer distances may not match exactly with what you measure. This is because many subwoofers have some built-in delay caused by internal equalization or other processing functions. By using a greater distance setting, Audyssey is able to compensate for these delays.



Audyssey MultEQ XT – Store Results

Audyssey MultEQ XT – Finish and Dynamic Volume

If the results look correct, select "Next" and then "Store" to save the calculated values. After the settings are saved, you can unplug the microphone. Before you are finished, you will have the opportunity to turn on Dynamic Volume. See page 38 for a description of Dynamic Volume.

At this point, the Audyssey setup process is complete. Some users may want to make adjustments to settings such as the crossover frequency, speaker size, or even channel levels. For example, Audyssey will have set the speaker channel trim levels to achieve equal output levels for all of the connected speakers, but users who prefer to use elevated channel trim settings for certain speakers (such as the center channel or the subwoofer) may "tweak" these settings to suit personal tastes. We will discuss these adjustments in the Roadmap to the Setup Menus, starting on page 49.

The AV7005 also supports MultEQ Pro calibration, which requires the services of an Audyssey Registered Installer. Installers use a kit from Audyssey that can sample more points in the room and more precisely customize the calculations used to produce Audyssey's curves. If you are interested in hiring an Audyssey Registered Installer, contact Outlaw support or see Audyssey's web site for recommendations.

Audio Formats and Listening Modes

Because the AV7005 supports the new lossy and lossless digital audio formats used by HD-DVD and Blu-ray as well as the older digital audio formats used by DVD, HDTV, DVD-Audio and SACD, *and* more generic audio data such as analog, stereo PCM, and multichannel PCM, the number of different input formats that users may encounter is large. Additionally, the processing modes available to use in conjunction with those formats are even more numerous. To assist in understanding the supported input formats and processing modes of the AV7005, we are devoting one section of this guide to two separate subjects: audio formats (the incoming audio data), and listening modes (the decoding and processing schemes which can be applied to that audio data).

Know Your Inputs

As our home theaters have evolved over the last decade, the input audio formats have expanded to include an ever-growing number. Before we study the surround processing modes offered by the AV7005, it is important to understand what these formats are and when they appear.

Analog Stereo and PCM Stereo

These two sources are treated the same way by the AV7005. The first is analog stereo connections, similar to what you might find from a VCR or some game consoles (Nintendo Wii, for example). The second is digital connections with stereo PCM signals, including sources such as CDs and some digital cable channels. The first case (stereo analog) is converted to stereo PCM by an analog-to-digital converter (ADC), so both inputs may be handled by the digital signal processor (DSP).

Dolby Digital

Dolby Digital was first called AC-3 when it appeared in the 1990s on LaserDisc, and it was the first format to provide true multichannel digital audio for consumer use. When the DVD specifications were established a few years later, Dolby Digital (often abbreviated "DD") was included as the default audio format. Dolby Digital offers up to five discrete full-range channels (left, right, center, left surround, and right surround) and a low frequency effects (LFE) channel; these six channels are often referred to as "5.1" because the LFE channel is limited to low frequency data only. To allow these tracks to fit on media such as DVD and be passed across digital connections originally designed for just two audio channels, lossy compression is used to compact the original data into a smaller size, allowing the audio tracks to use much less space than would be required for an uncompressed multichannel track.

Dolby Digital soundtracks are not required to use all six channels, so you will often encounter Dolby Digital 2.0 tracks (stereo) or even Dolby Digital mono tracks. Those mono tracks sometimes include two channels (left and right) with identical data in both (or "Dolby Digital 2.0 Mono"), but other times they contain a single channel ("Dolby Digital 1.0").

Dolby Digital Plus
Dolby Labs developed a successor to Dolby Digital for use with HD-DVD, Blu-ray, and satellite TV. This audio format is called Dolby Digital Plus (DD+). Dolby Digital Plus offers 7.1 or more discrete channels (rather than 5.1). It also employs more powerful lossy compression, enabling both lower bitrates and higher quality at higher bitrates. This format can only be delivered to the receiver in its native form via HDMI or transcoded to Dolby Digital 640 kbps for output via coaxial or optical digital audio.

Dolby TrueHD
Dolby TrueHD was developed for use with the new HD disc formats, HD-DVD and Blu-ray. The technology is an extension of Meridian Lossless Packing (MLP), the lossless audio compression format employed on DVD-Audio. Since the compression used does not discard any data, a TrueHD track preserves the original integrity of the uncompressed master.

DTS
DTS is an alternative to Dolby Digital that shares the same basic concept: six channels of audio, compacted using a lossy compression algorithm to save space. DTS uses an algorithm that is not as efficient as Dolby Digital and therefore not as heavily compressed, which many people believe allows it to sound better.

DTS-HD High Resolution
DTS responded to Dolby Digital Plus with DTS-HD High Resolution. DTS-HD High Resolution is an extension to DTS 96/24 that allows higher bitrates, but it still employs lossy compression. Like DD+, DTS-HD HR supports 7.1 channels, may be included on both Blu-ray and HD-DVD, and can only be transmitted via HDMI v1.3 or higher.

DTS-HD Master Audio
Despite the similarities in name, DTS-HD Master Audio is a completely separate audio format from DTS-HD High Resolution. Like Dolby TrueHD, DTS-HD MA employs lossless compression to provide a format that offers the sound quality of an uncompressed PCM track while offering a way to use less disc space. DTS-HD Master Audio also supports 7.1 channels.

Multich PCM
HDMI allows sources to output multichannel PCM because the connection can support the greater volume of data required to transmit up to eight channels of uncompressed digital audio. A multichannel PCM signal may be as delivered directly on a Blu-ray Disc, or as derived from any compressed audio bitstream the player can decode (including the formats listed above).

DSD
DSD (Direct Stream Digital) is a data format that differs significantly from PCM. It was originally developed for professional archiving purposes, and was then adapted for use with the high-resolution audio disc format SACD (Super Audio CD). There are a small

number of DVD players available that will output an SACD's DSD signal via HDMI v1.2a or higher. Other players will convert DSD to PCM and output multichannel PCM via HDMI. The AV7005 will require an SACD player to convert DSD to PCM if connected with HDMI. SACD players can also be connected via stereo or multichannel analog audio.

The Listening Mode Toolbox

In addition to the numerous audio formats supported by the AV7005, there are even *more* processing modes (also called "listening modes") available for use with those formats. To help understand the distinction between audio format and listening mode, we should review the three different basic forms of audio processing that may take place.

- Decoding: The digital audio formats (Dolby Digital, DTS, Dolby TrueHD, DTS-HD) must be decoded before anything else can happen.
- Post Processing – Surround Processing: One way or another and no matter how many channels of audio are involved, each audio input will end up as a PCM signal. At that point, the opportunity exists to apply additional processing. Some of the options include Dolby Pro Logic II/IIx, DTS Neo:6, and Dolby Digital EX. These modes can expand the original signal, creating additional audio channels.
- Post Processing – Additional Processing: Once decoding and processing tasks have been completed and a final set of audio channels are in place, there are a number of other processes that may be carried out. These include bass management (redirecting low frequency data among the various speakers and the subwoofer), time delay, A/V sync (delaying the audio signal to synchronize it with the video signal), and Audyssey or manually-configured equalization. Sometimes post processing includes reducing the number of channels, as when a system lacks a center channel and the data in that channel must be re-distributed to other channels. In some cases, the listening mode will force the AV7005 to skip portions of the signal processing in order to perform as little manipulation of the audio signal as possible.

The decoding of digital audio formats will happen without any user intervention, and the signal processing obeys settings selected in the AV7005's setup menus. It is that middle step, the surround processing, which may involve the greatest degree of user involvement. The remote control's "SURR" button will scroll through the available options for surround processing. A series of tables on pages 106 and 107 of the AV7005 User Manual identifies the listening modes that can be used with each source audio format. To aid in understanding those tables, we have provided a brief overview of the surround modes listed in the left column of those tables.

Auto

The Auto surround mode selects a listening mode based on the signal format. This is the AV7005's default behavior.

Source Direct
There is a tremendous amount of processing power available in the AV7005, but in some cases it is more desirable to preserve as clean a signal path as possible. With this in mind, the Source Direct listening mode disables Audyssey and Manual EQ, bass management, and M-DAX. Each incoming channel is sent directly to its output, untouched by the DSP circuits. Analog inputs thus remain pure analog when in this listening mode, with only volume control touching the signal.

Pure Direct
The Pure Direct listening mode is similar to Source Direct. In addition to what Source Direct does, Pure Direct disables video output (composite, component, and HDMI) and turns off the front panel display. As with Source Direct, this means that no bass management, channel trim, speaker delay, or equalization is applied and analog inputs remain analog.

(Dolby Digital) EX/(DTS) ES
Dolby Digital EX first appeared in theaters for *Star Wars: Episode I* in 1999. Dolby Laboratories began licensing it for use in consumer electronics around late 2001. It can be used with Dolby Digital 5.1 sources to produce a surround back signal, and some Dolby Digital tracks include matrix information designed to be recognized by Dolby Digital EX. In many of those cases, the source includes a "flag" that is meant to notify the surround processor that Dolby Digital EX is available. Unlike Pro Logic IIx, it produces a mono surround back signal. For that reason, whenever you have a system with four surrounds, we recommend using Pro Logic IIx instead of EX.

Shortly after Dolby Digital EX appeared, DTS introduced a variation of DTS called DTS-ES. A DTS-ES source includes six discrete audio channels, with the sixth being a rear surround signal.

Dolby Pro Logic II
Dolby Pro Logic is a matrix surround processing technology that has been available in consumer electronics since the 1980s, but it was replaced in 2001 by a significantly evolved successor called Dolby Pro Logic II. Pro Logic II can expand a stereo source into five discrete channels. It offers three different modes: Movie, Music, and Game. Movie and Game use pre-defined guidelines to determine how a stereo or matrix encoded signal is distributed throughout the five channels, but Music mode allows the user to adjust three settings to fine-tune the manner in which it generates surround sound. (See page 41 for those settings). When the AV7005 is operating with five or fewer speakers, Pro Logic II will be available. When one or more surround back speaker is available, Pro Logic II will be replaced by Pro Logic IIx in the listening mode options.

Dolby Pro Logic IIx
That brings us to Pro Logic IIx, which is an extension of Pro Logic II that first became available in 2003. It adds two capabilities to Pro Logic II: the ability to generate a maximum of seven channels (adding separate left and right surround back channels) instead of five, and the ability to be used with a 5.1-channel source such as Dolby Digital or DTS to extend them to 7.1 channels. All three of Pro Logic II's modes are retained by Pro Logic IIx.

Dolby Pro Logic IIz

Unlike earlier processing modes in the Pro Logic family, Pro Logic IIz does not focus on expanding audio into surround channels. Instead, Pro Logic IIz is a "Height" system that extends audio into a pair of speakers located above the front channels. Pro Logic IIz retains the surround processing features of Pro Logic IIx (expanding stereo sources into multichannel as well as creating 7.1 channels from 5.1 channel sources). In addition to that, it adds processing to produce the height channels above the left and right front speakers that expand the traditional horizontal soundfield and create a greater vertical front soundstage.

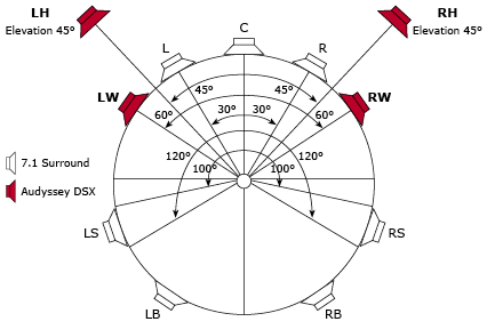
Pro Logic IIz processing will only be available if speakers are connected to the "Front Height" pre-amp outputs and the height speakers are enabled in the *Speaker Setup* menu. When Pro Logic IIz processing is engaged and surround back speakers are enabled, the AV7005 will not send a signal to the surround back speakers.

DTS Neo:6

Neo:6 could be considered DTS's version of Dolby Pro Logic II. Like Pro Logic II, it is designed to be used with stereo sources and it offers more than one mode. The Neo:6 Cinema mode is similar to Pro Logic II Movie, and Neo:6 Music is similar to Pro Logic II Music. (See page 41 for Neo:6 Music settings.) Unlike Pro Logic II, Neo:6 supports six discrete channels of audio (left, right, center, surround left, surround right, and a mono surround back). Due to this sixth audio channel, Neo:6 can also be used with 5.1-channel sources such as Dolby Digital and DTS to generate a mono surround back signal.

Audyssey DSX

Audyssey DSX (Dynamic Surround Expansion) is a matrix processing mode similar to Dolby Pro Logic IIz. It can be used to create either front height speakers (like those used with Pro Logic IIz) or front wide speakers (which are located between the front and side surround speakers). It requires a source that includes both front channels and a center channel. DSX can be combined with any other processing mode except for Stereo, Pro Logic IIz, Multi-Channel Stereo, Neural, Dolby Virtual Speaker, Direct, and Pure Direct. As with Pro Logic IIz, the AV7005 can not engage more than seven speakers at a time. See page 13 for limitations on the number of speaker outputs that can be output at once.



11.1 Surround = 7.1 plus Audyssey wides and heights

Circle Surround II

This processing mode from SRS Labs can be used to expand two-channel sources to multichannel, similar to Dolby Pro Logic II and DTS Neo:6. CS II can be used with analog stereo, PCM stereo, and Dolby Digital 2.0 sources. As with Pro Logic II and Neo:6, CS II offers Cinema and Music modes. It also offers a Mono mode for use with mono mixes.

Stereo
The Stereo listening mode provides two possible processing scenarios. The first is to preserve a stereo input with no surround processing. In this case, the stereo audio signal will simply pass on to the signal processing. The second scenario is using Stereo with a multichannel source, in which case this mode will downmix the multiple channels into just two channels, followed in turn by signal processing.

Dolby Virtual Speaker
Virtual Speaker is a processing technology developed by Dolby Labs to simulate surround sound using just two speakers. This mode is only recommended for systems in which no surround speakers are available.

Multi Ch.
The "Multi Ch." mode can be used with stereo sources. It expands the stereo signal into all of the speakers in your surround sound system by copying the left channel to the left surround, copying the right channel to the right surround, and creating a center signal from both left and right. Because this mode involves only minimal processing of the original signal, it is particularly popular for piping music throughout a room for a party. You will get consistent sound all the way around the room.

DTS Neural Surround
This processing mode is intended for use with Sirius Radio or other stereo music sources and produces surround sound using psychoacoustic frequency domain processing. Neural Surround can be used with any stereo source.

Dolby Headphone
When headphones are connected to the AV7005, Dolby Headphone processing can be employed to give a more immersive experience, particularly when listening to multichannel sources such as DVD and Blu-ray movies.

Audyssey Dynamic EQ
Audyssey Dynamic EQ is not a traditional listening mode, but it is a post-processing tool that users may find useful. Dynamic EQ is a function which adjusts frequency response and surround levels based on user-selected volume setting and the source material being played. This adjustment serves as a compensation for human perception and room acoustics at lower volume levels. We discuss some recommended settings for Dynamic EQ on page 43.

Audyssey Dynamic Volume
Like Dynamic EQ, Audyssey Dynamic Volume is a post-processing tool and yet not a typical listening mode. It is a system which monitors the volume of program material and adjusts the volume level to compensate for passages that are significantly louder (such as TV commercials). Audyssey Dynamic Volume cannot be used unless Audyssey Dynamic EQ is already engaged. We discuss Dynamic Volume settings and controls on page 43.

Selecting a Listening Mode

We have now outlined the listening modes offered by the AV7005. There are two ways available for controlling what listening mode is applied. The first is to select the default "Auto" mode using the AUTO button found on both the remote and the front panel. The "Auto" mode selects a recommended listening mode based on the audio input and the available speakers.

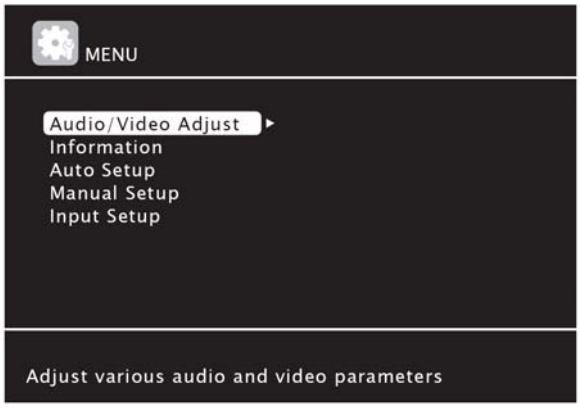
An alternative to the "Auto" mode is to manually set the listening mode. This can be done by scrolling through the available modes using the SURR. button on the remote control or the SURR. MODE button on the front panel. As you may have noticed, there are multiple modes available that all appear to do the same thing (such as Pro Logic II/IIx, DTS Neo:6, and Circle Surround II). If you listen carefully, you will find that they are all distinctly different. Use the modes that you like the most. The listening modes that are available will be determined by the format of the audio source. Repeatedly pressing the SURR or SURR. MODE button will scroll through these available listening modes.

There are also several modes that can also be accessed directly from the remote. The first is the Stereo mode, which can be engaged with any audio source by pressing the STEREO button on the remote. This mode will reproduce stereo sources (such as CDs) with no surround processing applied, but it will also downmix multichannel sources to stereo. The other option is Direct, which offers three modes that can be toggled through using the P. DIRECT button on the remote or front panel. The P. DIRECT button toggles between Source Direct, Pure Direct, and Auto modes. Other discrete commands on the remote include A-DSX (for engaging or disengaging Audyssey DSX), MULTEQ (for changing the equalization mode), DYN EQ/VOL (for changing the Audyssey Dynamic EQ and Dynamic Volume settings), and M-DAX (for adjusting the state of the M-DAX function, which is described on page 44).

As mentioned on page 72, the Wizz App available for the iPhone and iPod Touch also provides some direct control of listening modes. The "Surround" button brings up a page of available listening modes.

Roadmap to the Setup Menus

Many of the setup menu options have been covered in detail in the Quick Setup Guide, but there are some settings or menus that were intentionally skipped over. Here, we will briefly re-visit those menus as a supplement to the Quick Setup Guide, and provide additional information as well as page number references from the AV7005 User Manual for each menu and sub-menu. Users who have connected their AV7005 to a home network may also be interested in the Web Control tip on page 71.

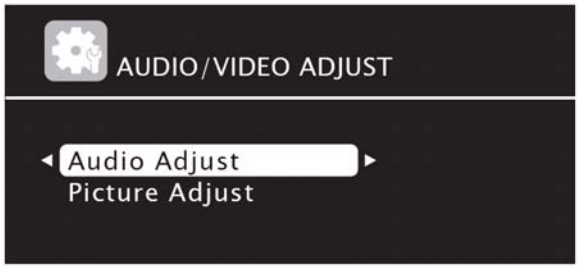


AV7005 Main Setup Menu

Some menu settings will retain different settings for each of the AV7005's inputs. In those cases, changing the settings will only apply to the active input. We will note these settings as we come to them.

Audio/Video Adjust

The *Audio/Video Adjust* menu contains an array of audio processing and picture controls, split between two sub-menus. We will address both of these sub-menus in detail below.



Audio/Video Adjust Menu

The AV7005's User Guide provides instructions on the controls in this menu on the pages listed below. This guide will also explain these settings and help you identify what changes may be necessary.

- Audio Adjust - Surround Parameter: *Page 73*
- Audio Adjust - Tone: *Page 73*
- Audio Adjust - Audyssey Settings: *Pages 74-75*

- Audio Adjust - Manual EQ: *Page 76*
- Audio Adjust - M-DAX: *Page 76*
- Audio Adjust - Audio Delay: *Page 76*
- Picture Adjust: *Page 77*

The Audio Adjust sub-menu addresses audio controls relating to dynamic range compression, tone controls, Pro Logic II/IIx Music, Pro Logic IIz, DTS Neo:6 Music, Audyssey, manual equalization, and audio delay.

The *Surround Parameter* sub-menu contains a series of settings related to surround processing.

"HT-EQ" is a setting that will compensate for overly-bright movie soundtracks that were mixed for movie theaters rather than home use. It is not available for the 7.1 channel analog input or when Source Direct, Pure Direct, or Dolby Headphone mode is in use.

"DRC" stands for **dynamic range compression**, and it is a setting that is applied to Dolby TrueHD sources only. This is a function that reduces the dynamic range of the signal. The result is less difference between high and low audio levels, suppressing the peaks in volume during movies while still allowing dialogue to be clearly audible. It offers an "Auto" option as well as "Low," "Mid," "High," and "Off." The "DRC" setting is only available for adjustment when a Dolby TrueHD input is playing.

"D. COMP" is similar to "DRC" and also controls **dynamic range compression**, but it is a separate adjustment for Dolby Digital sources. It can be set to three different levels or disabled using the settings of "Low," "Mid," "High," and "Off." The "D. COMP" setting is only available for adjustment when a Dolby Digital input is playing.

"LFE" allows adjustment of the output level of the **LFE signals** found on Dolby Digital and DTS sound track. The options are "0dB" (no change), "-10dB" (a 10dB reduction in LFE level), or "OFF" (no LFE signal). The recommended settings are "0dB" for Dolby Digital sources and DTS Movie sources and "-10dB" for DTS Music sources. The setting has no effect in redirected bass sent to the subwoofer from other speakers. Note that this setting is only available for adjustment with a Dolby Digital or DTS source is active.

The setting for "Center Image" is used by the **Neo:6 Music** mode. It determines how Neo:6 Music derives a center channel signal from a stereo source. When Center Gain is set to 0 (the minimum setting), both left and right channels are attenuated by half in order to create the center channel signal. A Center Gain setting of 1 applies no attenuation to the left and right channels, preserving the original stereo signal and producing no center channel audio. The default value is 0.3. This setting is only available when Neo:6 processing is being used with a stereo source.

The **Music mode** for **Pro Logic II/IIx** incorporates three settings that allow user adjustment to how the mode operates with two-channel sources. These three settings are "Panorama," "Dimension," and "Center Width." "Panorama" can be set to "On" or "Off." When set to "On," Pro Logic IIx will extend the front soundstage into the

surrounds. "Dimension" allows for settings ranging from -3 to +3, with a default of 0. Setting this value to less than zero will cause Pro Logic IIx to steer more information into the surrounds, moving the soundstage "back" into the room. This can help with sources that seem too much like mono. Setting this value to more than zero pulls the soundstage "forward" toward the front speakers, reducing the surround activity. The third Pro Logic IIx setting is "Center Width," which can be adjusted from 0 to 7. At a Center Width of 0, all center channel information is sent to the center channel output. As the Center Width setting increases, more of the center channel data is spread out to the left and right channels. A Center Width of 7 will redirect all center channel data to the left and right channels. The default value is 3. All three of these settings only appear in the menu when Pro Logic IIx-Music processing is being used with a stereo source.

Pro Logic IIz includes a setting called "Height Gain" which allows user adjustment to the output of the front height channel. The options are "Low," Mid," and "High" and the default is "Mid." At the "Mid" setting, the height channel volume is matched to the front channels. "Low" and "High" decrease or increase the height channel volume, respectively. This setting will only be available for adjustment when the height speakers are enabled and Pro Logic IIz processing is being used.

The last setting in the *Surround Parameter* sub-menu is "Default." Setting this to "Yes" will cause all settings in the sub-menu to be reset to the factory defaults.

The second sub-menu under *Audio Adjust* is *Tone*. This sub-menu contains three settings. The first is "Tone Control," and when set to "On" it will enable the bass and treble tone controls. Those two controls are also in this sub-menu, and each allows adjustment from -6dB to +6dB. Tone Control can only be set to "On" when Audyssey Dynamic EQ is disabled. The Dynamic EQ setting appears in the next sub-menu.

Audyssey Settings is the third sub-menu under *Audio Adjust*. It starts with a setting for **MultEQ XT**, the room correction equalizer that is at the heart of the AV7005's Audyssey software suite. This setting allows the user to specify which equalization curve will be applied by the AV7005. It can only be adjusted after an automatic setup has been performed and the Audyssey curves have been generated. If any changes are made to the speaker settings generated by Audyssey MultEQ XT auto setup, the Audyssey curves will not be available for selection. See the "Restore" setting under *Parameter Check* in the *Auto Setup* menu (page 48) if settings have been changed and you wish to revert to the calculated values.

- Audyssey: Equalization is applied to all speakers based on Audyssey calculations to correct for the sound characteristics of the listening room.
- Audyssey Byp. L/R: No equalization is applied to the front speakers. Equalization is applied to the other speakers based on Audyssey calculations.
- Audyssey Flat: Equalization is applied to all speakers based on Audyssey calculations. Additionally, the frequency characteristics of all speakers are flattened. This mode is recommended for multichannel music playback.
- Manual: Equalization is applied to all speakers based on user-defined equalization curves set in the *Manual EQ* sub-menu discussed on the next page.
- Off: No equalization is applied.

The Audyssey Dynamic EQ and Audyssey Dynamic Volume settings later in this sub-menu will not be accessible unless "MultEQ XT" is set to one of the three Audyssey options. All of these settings (MultEQ XT, Dynamic EQ, and Dynamic Volume) can be set differently for each input, allowing different equalization curves (or no equalization at all) to be applied to different sources.

Audyssey **Dynamic EQ** is a function which adjusts frequency response and surround levels based on a user-selected volume setting and the source material being played. This adjustment serves as a compensation for human perception and room acoustics at lower volume levels. If "Dynamic EQ" is turned on, the "Reference Level Offset" setting can be changed from 0dB (the default value) to 5dB, 10dB, or 15dB. Marantz recommends 5dB for sources with a very wide dynamic range, such as classical music. They recommend 10dB for musical sources such as jazz (which also have a wide dynamic range) and for TV content. The 15dB setting is recommended for pop/rock music or other material that is mixed at a high level or has a compressed dynamic range. Turning Dynamic EQ on without changing the reference level offset will produce noticeably louder audio with many sources.

The last option in the *Audyssey Settings* sub-menu is "Dynamic Volume." **Dynamic Volume** is a system which monitors the volume of program material and adjusts the volume level to compensate for passages that are significantly louder (such as TV commercials). Audyssey Dynamic Volume cannot be used unless Audyssey Dynamic EQ is already engaged. Audyssey Dynamic Volume offers three levels of compression: Light, Medium, and Heavy.

The settings for Audyssey Dynamic EQ and Audyssey Dynamic Volume can be adjusted in the *Audyssey Settings* sub-menu or directly from the remote using the "DYN EQ/VOL" button. Each time this button is pressed, the AV7005 will toggle through a series of settings. The first is setting both Dynamic EQ and Dynamic Volume to "off." The others will all engage Dynamic EQ and scroll through the four Dynamic Volume options (Off, Heavy, Medium, and Light). The Dynamic EQ settings (including Offset) and Dynamic Volume settings are all stored separately for each input.

The **Audyssey DSX** processing mode can provide additional speaker channels, either height channels or wide channels as described on page 37. DSX sounds for Dynamic Surround Expansion. The "A-DSX Soundstage" sub-menu includes several settings that determine how Audyssey DSX functions. The "Audyssey DSX" setting determines whether DSX will use height channels ("ON-Height"), wide channels ("ON-Wide"), or there are no wide or height speakers connected ("OFF"). For wide speakers, the "Stage Width" setting offers adjustment from -10 to +10. A higher setting for "Stage Width" increases how much of the surrounds are merged with the fronts to derive a signal for the wide speakers. For height speakers, the "Stage Height" setting also offers adjustment from -10 to +10. A higher setting for "Stage Height" determines how much DSX attempts to expand the influence of the front speakers into the height speakers.

In addition to the equalization curves calculated by Audyssey, the AV7005 allows users to manually define equalization curves using the *Manual EQ* sub-menu. This sub-menu provides a manual 9-band octave graphic EQ for each of the nine speakers (left, right, center, both surrounds, both back surrounds, and both front height speakers), which provides you with the ability to directly set -20dB to +9dB of adjustment at frequencies of 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, and 16kHz. Adjustments may be made in 0.5dB increments. The adjustments are made to all speakers together, to only the left and right front speakers together, or to each speaker individually depending on how the "Adjust CH" menu item is set ("All," "L/R," or "Each" respectively). If the user wishes to create a Manual EQ curve based on the Audyssey Flat curve, the "Base Curve Copy" menu can be set to "Yes" and the AV7005 will copy the settings from the Audyssey Flat curve onto the Manual EQ curve. The Manual EQ curve can also be reset to the default values (0dB for each channel) by setting the "Default" to "Yes." Manually adjusting EQs for each speaker in this manner is a complex task which will require measurement equipment and computer software to implement properly.

The AV7005 offers a function called **M-DAX** (Marantz Dynamic Audio eXpander). M-DAX is intended to compensate for lost audio content in MP3 and AAC audio files. These file formats employ lossy audio compression that discards audio content to maximize compression. The menu setting "M-DAX" offers four options: "Low," "Mid," "High," and "Off." The "Low," "Mid," and "High" apply M-DAX to the active audio source. The "Low" setting is optimized for compressed source material with normal high frequency audio. The "Mid" setting applies bass and treble adjustments for all compressed source material, while "High" is optimized for sources with very weak high frequency audio. In addition to the menu setting found here, M-DAX can be controlled from the remote control using the "M-DAX" button. Like the Audyssey settings, M-DAX settings are stored separately for each input.

The last setting in this menu is "Audio Delay." This allows the audio signal to be delayed up to 200 milliseconds (msec) in 1msec intervals to compensate for delays in the video signal created by digital video processing and transmission path encode/decode. As with many of the settings in the *Input Setup* menu, this setting is stored separately for each input and changes made here are only applied to the active input. This setting can also be adjusted for the active input using the remote by pressing the "DLY" button and adjusting up or down with the ◄ and ► buttons.

The *Picture Adjust* sub-menu provides a number of controls for the video processor, an Anchor Bay Technologies ABT2015. These controls are similar to the basic picture controls found on a TV, such as contrast and brightness, but they also cover several more advanced capabilities such as noise reduction and edge enhancement. There are six settings in this sub-menu. As with the Dynamic EQ, Dynamic Volume, and Audio Delay setting, these are stored separately for each input. Changes made in this menu are only applied to the active input. Because you cannot change inputs while in the setup menu, you will need to exit the menu entirely, change inputs, and return to the *Picture Adjust* sub-menu to make adjustments for each input.

The first setting in this sub-menu is **Contrast**. Contrast allows adjustment of white levels, and it can be adjusted from -6 to +6. A lower setting produces a lower white level, while a higher setting provides a higher white level.

Brightness is the second setting under *Picture Adjust* and it allows adjustment of the black level. Brightness can be set from 0 to +12, with a higher number representing a lighter black level.

The third setting in *Picture Adjust* is **Chroma Level**. The chroma level setting adjusts color saturation, or the amount of color in the picture. It can be adjusted from -6 to +6, with a lower setting producing less color saturation.

Hue in the *Picture Adjust* menu is also sometimes called "tint" and controls the red/green color balance. Hue can be set between -6 and +6. Negative settings for Hue shift the color balance toward green, while positive settings shift the color balance toward red.

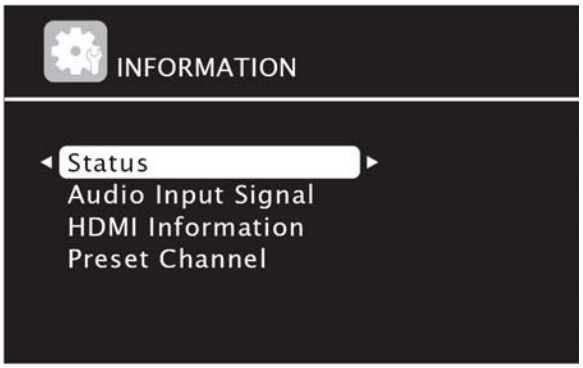
The **DNR** setting stands for digital noise reduction. Noise reduction can help eliminate the video artifacts produced by video compression. The options for DNR are Off, Low, Mid, and High. Higher settings may be useful sources that include significant video compression. For sources such as Blu-ray, we recommend leaving DNR set to Off. DNR is applied to the HDMI output, but not to analog video outputs.

The last setting under *Picture Adjust* is **Enhancer** and is a setting that is also often called edge enhancement. It can be adjusted from 0 to +12. A setting of 0 disables edge enhancement. Increasing the Enhancer setting will raise the sharpness of object edges. Setting Enhancer too high will create unwanted video artifacts along object edges. Enhancer is applied to the HDMI output, but not to analog video outputs.

Proper video calibration is important, particularly the contrast and brightness settings. Incorrect adjustment of black and white level can degrade picture quality significantly. By default, all settings in this sub-menu are set to either 0 or Off. In many cases, it is appropriate to leave them this way. Where possible, you should perform video calibration at your display. Not all sources behave the same, however, and many of those sources lack the necessary video adjustments to resolve that. Modern HDTV's address this by storing video adjustments separately for each input. Because the AV7005 is providing your video switching, however, the TV is only able to use one input's settings. That just leaves the AV7005 to provide the adjustment for sources that need it. We recommend leaving the settings all at their defaults for your primary video source (Blu-ray Disc in most cases) and calibrating your display to that source. If there are other inputs such as DVD players, game consoles, and cable or satellite receivers that still require additional calibration, the *Picture Adjust* sub-menu can apply any necessary adjustments.

Information

The Information menu offers details about the current state of the AV7005. A lot has to happen in the background for a surround sound receiver to produce sound and video. The AV7005's *Information* menu provides a convenient way to verify the format of incoming and outgoing signals and to verify settings, thus providing a glimpse at what is happening inside the AV7005.



Information Menu

The page numbers below refer to the AV7005 User Guide.

- Status: *Page 88*
- Audio Input Signal: *Page 88*
- HDMI Information: *Page 88*
- Preset Channel: *Page 88*

The first sub-menu is *Status*, which provides information about the settings for both the main zone and zone 2. This sub-menu contains three pages of data. The ▲ and ▼ buttons on the remote will scroll through these pages. The first page lists the selected source, source name (custom input label), surround mode currently in use in the main zone, Input Mode, Decode Mode, and HDMI, digital audio, and component video assignments. The second page shows Video Select and Video Mode settings that are currently active, i/p Scaler, Resolution A, Resolution H, Progressive Mode, and Aspect settings. The third page shows the status of Zone 2 and Zone 3.

The second sub-menu is *Audio Input Signal*, which provides extensive information on the incoming audio signal and how it is being processed. The first item in the sub-menu is "Surround Mode," which shows what listening mode is currently being applied. The next three are "Signal" (input signal type, such as LPCM or Dolby Digital or Dolby TrueHD), "fs" (sampling frequency), and "Format" (number of channels of audio). The audio channels are listed in a format of "x/y/z." In this format, "x" is the front channels (2 for left and right or 3 for left, right, and center), "y" is the surround channels (2 for surrounds only, or 4 for surrounds and back surrounds), and "z" is the LFE channel (.1 for a LFE subwoofer channel). These three combine to provide a detailed description of the audio signal being delivered to the AV7005 by the active source. For a typical 5.1

input, "Format" will report "3/2/.1". The next item is "Offset," which can also be seen by pressing the "STATUS" button on the front panel. It shows the dialogue normalization correction value called for by the input signal. It is only included for Dolby Digital, DTS, and Dolby TrueHD sources. The last item is "Flag," which displays any surround back channel flags. These include "MATRIX" (indicating a Dolby Digital EX or DTS-ES Matrix flagged signal) and "DISCRETE" (indicating a DTS-ES Discrete flagged signal).

The third sub-menu is *HDMI Information*. This provides two reports. The first is "Signal Information," which shows resolution, color space, and pixel depth for the incoming video signal if an HDMI source is active. Each entry includes the format of the incoming signal and the format of the outgoing signal, with an arrow (">") between the two. The second report is "Monitor Information," which shows the interface and support resolution reported by the display if an HDMI display is connected and turned on. This information is provided separately for both HDMI outputs.

The final sub-menu is *Preset Channel*, which shows information about the tuner presets. There are seven groups of presets, each with eight channels. This menu only appears when the active input is a tuner (AM/FM or SIRIUS).

Many users will never have any need to make use of the *Information* menu, but it is a very useful resource under certain circumstances. It can help with troubleshooting problems, such as improperly-configured DVD players not providing surround sound audio. It can also provide confirmation that other components in the system are operating properly, such as HD cable boxes providing high definition video or Blu-ray Disc players providing lossless audio. Also, as noted in our "Web Control" tip on page 71, this information is available using a web browser on a computer, wifi-enabled smart phone, netbook, or similar device if the AV7005 is connected to your home network.

Auto Setup

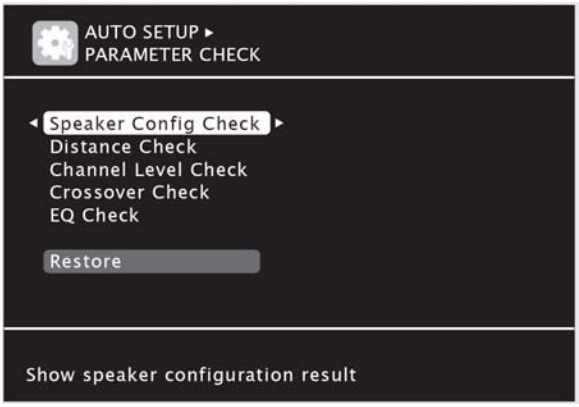
The Auto Setup menu can be used to start the Audyssey MultEQ XT automatic setup and to review the results of a previous Audyssey measurement. We discussed how to use the automatic setup process starting on page 25, but we did not discuss the *Parameter Check* sub-menu.

Auto Setup Menu

The AV7005 User Guide provides detailed instructions for the Auto Setup menu on the pages below.

- Audyssey Auto Setup: *Pages 8-11*
- Parameter Check: *Page 12*

The *Parameter Check* sub-menu provides access to the same information listed in Step 4 of the Audyssey Auto Setup. These include separate information on speaker configuration ("Speaker Config. Check"), speaker distances ("Distance Check"), channel levels ("Channel Level Check"), and crossover frequencies ("Crossover Check"). It also provides a report on EQ settings ("EQ Check"). None of these screens allow any user adjustment of the results.

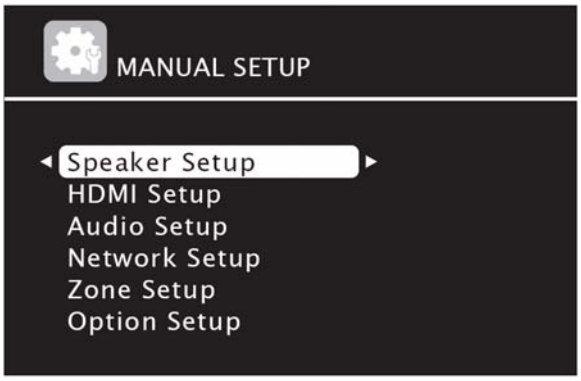


Parameter Check Sub-Menu

The last entry in the *Parameter Check* sub-menu is "Restore", which will reset all speaker settings (including distances, channel levels, and bass management settings) to the values determined by Audyssey and listed above in this sub-menu. This will override any user adjustments that have been made since Audyssey Auto Setup was last run.

Manual Setup

We discussed several sections in the Manual Setup menu in the Quick Setup Guide. This menu provides access to settings for speakers, HDMI connections, audio connections, Zone 2, and various other settings.

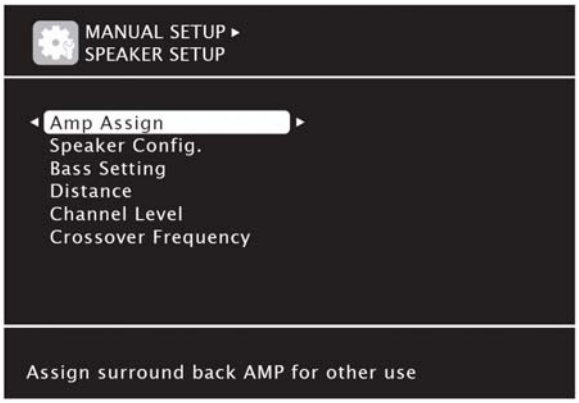


Manual Setup Menu

The *Manual Setup* menu is explained in the AV7005 User Guide on the pages listed below.

- Speaker Setup: *Pages 78-80*
- HDMI Setup: *Page 80*
- Audio Setup: *Page 81*
- Network Setup: *Pages 81-83*
- Zone Setup: *Page 83*
- Option Setup: *Pages 84-87*

In the Quick Setup Guide, we skipped past most of the *Manual Setup* menu because we used the Audyssey MultEQ XT automatic setup.



Speaker Setup Sub-Menu

Amp Assign was discussed in the Quick Setup section on page 22. The other entries in this menu are all set by the Audyssey Automatic Setup (if it is used) but can be manually adjusted if desired. Before we move any farther, however, we should pause to review bass management briefly because a number of the settings in this sub-menu relate to bass management.

The **bass management** settings under "Speaker Config." and "Crossover Frequency" will determine how low frequency audio is managed between the speakers. "**Large**" defines a speaker as being capable of reproducing low frequencies. "**Small**" defines a speaker as one that should have low frequencies re-directed to a subwoofer. It is the "small" speakers that receive bass management. Which setting is appropriate should not be determined solely by a speaker's physical size. Instead, it should be determined by the speaker's performance characteristics. Speaker manufacturers provide a number of specifications with each speaker, and the frequency response specification is the best way to determine if a speaker should be considered "large" or "small." This specification may be listed as a range (such as "54Hz-21,000Hz +/-3dB"), or as a value for the lower limit (such as "Low Frequency Extension: 54Hz (-3dB)"). Some people will classify speakers as "large" if the low frequency limit is as high as 40Hz, and some people will require speakers to achieve close to 20Hz to be considered "large". In general, a speaker should be considered to be "small" unless the **low frequency limit** is near or below 30Hz. Even for speakers that can play to such low frequencies, a subwoofer will often provide better performance below 80Hz (louder and/or with less

distortion). We recommend finding out what the lower limit is for each of your speakers, as it is useful for several settings in this sub-menu.

In the "Speaker Config." sub-menu, each set of speakers (Front, Center, Surround, Surround Back, Front Height, and Front Wide) can be set to "Large" or "Small", and all of the speakers except for the Fronts can be set to "None." Surround Back speakers can only be set to "Large" if the Surround speakers are also "Large". The subwoofer can be set to "Yes" or "No", but "No" is only an option if the Front speakers are set to "Large". When the subwoofer is set to "No", redirected bass from small speakers and the LFE (.1) channel from multichannel audio tracks will be steered to the "Large" front speakers. Because the AV7005 supports either a single surround back speaker or a pair of surround back speakers, the "Surround Back" setting can be "None" (no surround back speakers), "1sp" (a single surround back speaker), or "2sp" (a stereo pair of surround back speakers).

The "Bass Setting" sub-menu has two settings, both related to the subwoofer. The first is "Subwoofer Mode," which offers two options if the subwoofer is set to "yes" in the *Speaker Config.* sub-menu. The first option is "LFE." In this mode, the LFE channel is combined with low frequency audio from small speakers and sent to the subwoofer. The second option is "LFE+Main," which combines the LFE channel with low frequency data from all small speakers and from large front speakers. In this case, the large front speakers will also get the low frequency audio. The second setting in "Bass Setting" is "LPF for LFE." This setting controls a low-pass filter that is applied to the LFE channel and prevents high frequency audio in the LFE channel from being sent to the subwoofer. Options are 80Hz, 90Hz, 100Hz, 110Hz, 120Hz, 150Hz, 200Hz, and 250Hz. We recommend setting "LPF for LFE" no lower than the default of 120hz.

The next stop in the *Speaker* Setup sub-menu is the "Distance" sub-menu. Most home theaters cannot be set up with each speaker located the same distance from the listening position. In many cases, it is not even possible to have pairs of speakers (front left/right or surround left/right, for example) the same distance from the listening position. To compensate for these differences in distances, the AV7005 can delay each speaker signal separately so that all channels' sound reaches the listening position at the same time. As with speaker size, the speaker distance settings can be determined automatically using the Audyssey MultEQ XT setup process, but it can also be set manually using the *Speakers Distance* sub-menu. To make these settings manually, use a tape measure to measure the distance from the listening position to each speaker. Use the ▲ and ▼ buttons to highlight each speaker and use the ◄ and ► buttons to adjust the distances in 1.0ft or 0.1ft increments (determined by the "Step" setting) from 0.1ft to 60ft. The unit of measure can also be changed from feet to meters using the "Unit" setting at the top of the sub-menu.

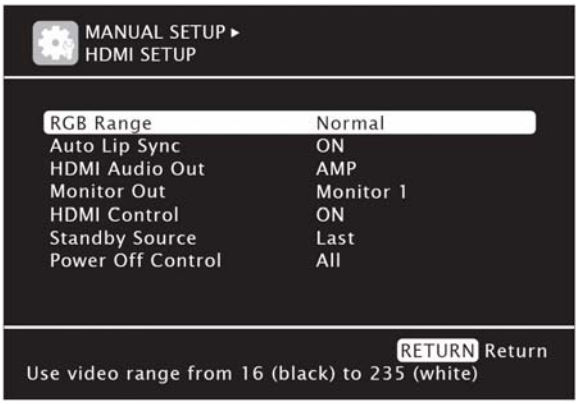
Some systems may have outboard subwoofer equalization equipment (such as a Behringer EQ or Velodyne SMS-1) connected between the AV7005 and the subwoofer. The signal processing performed by these units can produce a signal delay, and the Audyssey measurements will perceive that delay as a greater distance from the listening position. As a result, these systems will cause the subwoofer distances

reported by Audyssey to not match the actual speaker placement. We recommend retaining the Audyssey-measured distances, as they include delays for both physical distance and for signal processing. For subwoofers with equalization built in, we also recommend disabling that equalization and using Audyssey alone; in most cases Audyssey will provide superior results.

The Audyssey MultEQ XT automatic setup process adjusts individual speaker levels, but these adjustments can also be made manually in the "Channel Level" sub-menu. A process for doing this using the AV7005's internal test tones is described on page 58 of the Marantz AV7005 User Manual. If the Audyssey MultEQ XT automatic calibration is not used, we recommend performing this manual calibration using an SPL (sound power level) meter. Analog SPL meters are available at Radio Shack or online for under $50, while iPhone or Google Android phone owners can purchase SPL meter apps for as little as $0.99 that provide the same capability.

When any speakers are set to "Small", the AV7005 will apply bass management to those speakers and redirect low frequencies to either the subwoofer or "large" front speakers. The **crossover point** used by this bass management can be adjusted to coordinate with the speakers in your system. This adjustment is the "Crossover" value listed in the "Crossover Freq." sub-menu, which can be set to 40Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz, 200Hz, or 250Hz. This is the crossover point that will be used with all "small" speakers. If Audyssey Auto Setup has been performed, the "Crossover Freq." sub-menu will contain an option for an "Advanced" mode in place of the "Crossover" mode. In Advanced mode, separate crossover settings can be applied to the Front, Center, Surround, Surround Back, and Front Height speakers. Each set of speakers can have a crossover setting of 40Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz, 200Hz, or 250Hz. In "Crossover" mode, a single crossover setting is applied to all small speakers. For either mode, the crossover point should be set higher than the low limit value (54Hz in the two examples on page 41). We also suggest not setting the crossover exactly at the speaker's low frequency roll-off point, particularly for the front and center speakers. Consider using a crossover point at least 10Hz or 20Hz above the speakers' lower limit. When setting all speakers to a common crossover, pick a value that is at least 10Hz or 20Hz above the front and center speakers' lower limit. If you are using speakers that are THX certified, use an 80Hz crossover. This is the THX standard for speaker certification.

The final setting under *Speaker Setup* is "Front Sp Setup," which determines whether the front channels play through the "Front A" and/or "Front B" outputs. The options are "A," "B," and "A+B." This setting can also be changed using the "SPKR A/B" button on the remote control. The default setting of "A" is typically recommended.



HDMI Setup Sub-Menu

The second sub-menu is *HDMI Setup*, which covers a number of settings related to HDMI input and output.

The "RGB Range" setting controls the video range of RGB output at the HDMI outputs. Computer monitors with DVI inputs expect the full RGB video range (0 to 255), while HDTV's with DVI inputs expect the truncated RGB video range (16 to 235) that is used by HDMI. It should be left on the default of "Normal" in most cases, as this corresponds to the 16-235 range that is used by HDTV's with DVI inputs. The setting of "Enhanced" should only be used when connecting to a computer monitor with a DVI input.

If the AV7005 is connected to an HDMI v1.3a or v1.4a display, "Auto Lipsync" can be set to "Enable" to allow the AV7005 to automatically determine the audio delay required to compensate for delays in the video signal caused by video processing.

"HDMI Audio Out" should be set to "Amp" in most cases. This setting allows the AV7005 to play the audio delivered via HDMI. The "TV" setting will pass the incoming HDMI audio signal through to the TV, but will not allow the AV7005 to use the audio. If "TV" is selected, all inputs using an HDMI video connection will require a separate audio connection, such as coaxial or optical digital or analog audio.

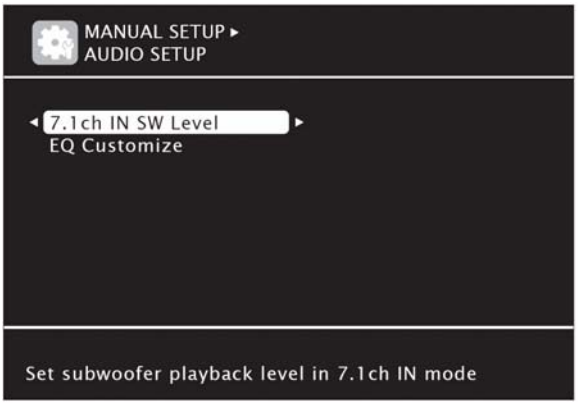
The AV7005 includes two HDMI monitor outputs, but only one can be used at a time. "Monitor Out" selects which output is active. "Monitor 1" enables HDMI Output 1, and "Monitor 2" enables HDMI Output 2. The active output can also be changed direct from the remote control using the "HDMI" button and from the front panel using the "HDMI OUT" button.

"HDMI Control" is a global setting that, when enabled, allows the AV7005 to communicate via HDMI with other compatible devices such as HDTVs and Blu-ray Disc players. This setting enables a function called **CEC** (Consumer Electronics Control) that is a feature of HDMI v1.3 and allows compatible devices to exchange control instructions, such as changing inputs automatically or turning related devices on together. The AV7005 will use more power in standby mode when this is enabled because it must be able to accept commands to turn on or change inputs even when in standby mode. This option must be enabled in order to use the HDMI **Audio Return**

Channel (ARC), which allows audio from the TV to be delivered to the AV7005 through the AV7005's HDMI output 1. It will not be possible to assign an HDMI input connection to the TV input when "HDMI Control" is enabled because the TV input will receive audio via ARC on the HDMI output 1.

When the AV7005 is in standby, the HDMI switching can provide a pass-through of one HDMI input. This allows one HDMI source, such as a cable or satellite receiver, to deliver both audio and video to the TV without turning the AV7005 on. Which input is passed through is determined by the "Standby Source" setting. The options are "Last" and "HDMI1" through "HDMI6," with "Last" using the last input source used by the AV7005. "Standby Source" can only be used of "HDMI Control" is set to "On."

One feature of HDMI CEC is the ability to turn on and off when other devices are turned on or off. "Power Off Control" can be adjusted if "HDMI Control" is enabled, and it determines how the AV7005 responds when connected HDMI v1.3 devices are turned on or off. If set to "All," the AV7005 will turn off any time a connected TV is turned off. If set to "Video," the AV7005 will turn off when a connected TV is turned off only if the active input is a video source (BD, DVD, VCR, SAT, GAME, AUX1, or TV). If set to "Off," the AV7005 will not turn off via CEC.

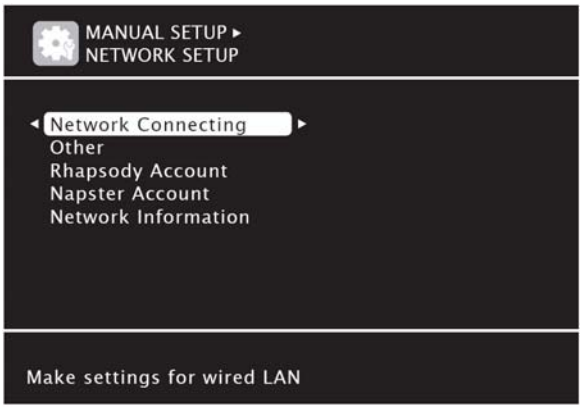


Audio Setup Sub-Menu

The *Audio Setup* sub-menu contains two settings. The first is a level control for the subwoofer channel of the 7.1 channel analog input, and the second allows customization of the equalizer settings.

The "7.1ch IN SW Level" screen provides control for one setting: "Subwoofer Level." This can be set to 0dB, +5dB, +10dB, and +15dB. The recommended setting is the default of +10dB, as it compensates for the standard 10dB reduction in subwoofer level that is included in 5.1 sources (Dolby Digital, DTS, etc.), but the +15dB setting may be needed in some cases if the source is applying bass management.

This "EQ Customize" screen offers three adjustments. The first is "Audyssey Byp. L/R," which can be set to "Used" or "Not Used." Likewise, "Audyssey Flat" and "Manual" can be set to "Used" or "Not Used." In each case, setting an equalizer to "Not Used" will remove that equalization curve from the available modes when pressing the MULTEQ button on the remote control.



Network Setup Sub-Menu

The AV7005 includes an Ethernet port. This network connection provides a number of useful functions, but it all requires that the AV7005 be properly connected to your home network. Several of the network functions also require account information to allow the AV7005 to connect to Internet services. All of these settings are located in the *Network Setup* sub-menu.

The "Network Connecting" sub-menu contains all the settings required to connect the AV7005 to your home network. For most cases, though, this will not take any work. Home networks typically use DHCP (Dynamic Host Configuration Protocol), which means that the network router automatically assigns IP addresses and provides necessary data such as subnet mask, gateway, and DNS server addresses to any network client that is connected to it.

Some users will want to manually set an IP address, subnet mask, gateway, and DNS server, in which case you should set "DHCP" to "Off" to allow the network settings to be manually configured.

If necessary, the AV7005's network connection can be configured to work with a proxy server. Start by picking "Details" on the main screen of "Network Connecting" sub-menu and then select the "Proxy" button.

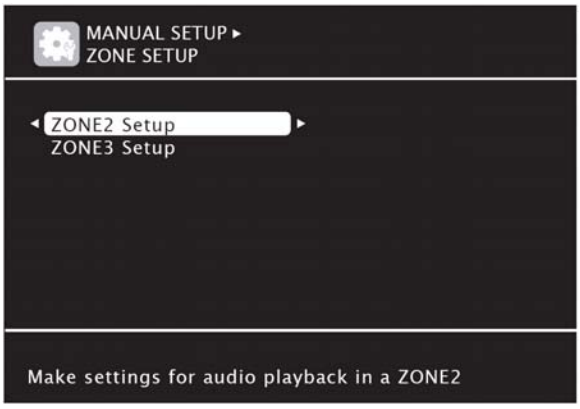
The "Other" sub-menu includes several settings related to the network interface. The first is "Network Standby" and determines whether the AV7005's network interface is active when the unit is in standby. By default, "Network Standby" is set to "Off," but it should be set to "On" if you plan to use the web control function or RS-232 port to turn the unit on. The "PC Language" setting determines the language used, and the default is "ENG" (English). The "Friendly Name Edit" setting defines the name the AV7005 uses on your home network. The default name is "marantz(AV7005)" but you can edit this name using the interface described on page 61. You can also reset the name to the default by setting "Default" to "Yes." Lastly, the AV7005 can poll Marantz's servers to check for firmware updates. If set to "Yes," "Update Notification" will check for firmware updates and display a notification message for 20 seconds each time the unit is powered on. Updates can then be installed using the "Firmware Update" command

under the *Option Setup* sub-menu (see page 58). "Upgrade Notification" will check for firmware updates that add new features to the AV7005 and, if set to "Yes," the AV7005 will provide a notification message. Those updates can then be installed using the "Add New Features" command under *Option Setup* sub-menu (see page 58).

Users with a Rhapsody music account will need to use the "Rhapsody Account" sub-menu to enter their login information (user name, password, account number). Users can also clear their account information using the "Clear" option. We describe the AV7005's Rhapsody support on page 68, and a Rhapsody account must be entered here for that service to function.

The "Napster Account" sub-menu allows users to enter a user name and password for a Napster music account. Like the similar Rhapsody subscription service, an account must be defined in this menu for the AV7005's Napster support to function. We describe the AV7005's Napster support on page 69.

The final entry in the *Network Setup* sub-menu is "Network Information," which lists the AV7005's network name, the status of DHCP (on or off), the assigned IP address, and the MAC address. No changes can be made in this menu.

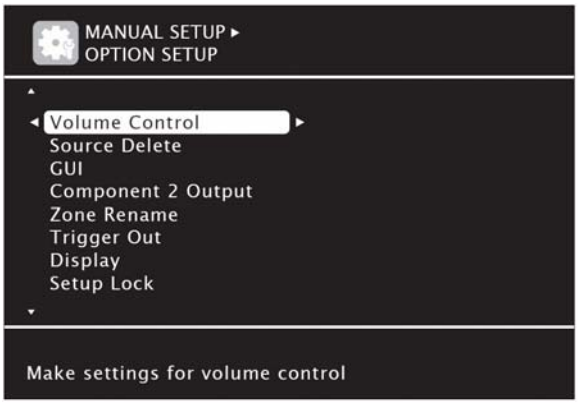


Zone Setup Sub-Menu

The *Zone Setup* sub-menu provides numerous adjustments for the second zone and third zone. Each zone has a separate menu that provides settings for that zone; both menus offer the same settings. Controls for bass and treble tone allow ±10dB adjustment. A high-pass filter (HPF) can be enabled, in which case low frequencies will be attenuated. This is useful if the Zone 2 or Zone 3 speakers are too small to effectively reproduce low frequencies. Left and right channel levels can also be adjusted ±12dB and the output can be set to be either Stereo or Mono using the Channel setting. Lastly, there are four volume adjustments available. The first is to set whether the volume output is variable (adjusted using the remote control) or fixed at one of two levels (either -40dB or 0dB). The fixed settings are useful if the Zone 2 or Zone 3 speakers have a remote volume control, either at a separate amplifier or using a wall-mounted volume control located between the amplifier and the speakers, as is often found in homes with in-wall or in-ceiling speakers. If a variable volume control is enabled, a volume limit can be set at -20dB, -10dB, or 0dB (no limit). The volume level

when Zone 2 or Zone 3 is first turned on can be defined using the "Power On Level" setting. Options include "Last" (the previously-used volume control, "---" (muted at start), or anywhere from "-80dB" to "18dB". Additionally, the "Mute Level" determines how the mute function works for Zone 2. Options are "Full" (completely mutes audio), "-40dB" (reduces the volume by 40dB), or "-20dB" (reduces the volume by 20dB).

Zone 2 and Zone 3 can be turned on and off from the remote control by selecting "Z2" or "Z3" (which sets the remote to operate that zone) and pressing "ON" or "STANDBY." When the remote is in this mode, the "INPUT" ▲ and ▼ buttons will change inputs.



Option Setup Sub-Menu

The *Option Setup* sub-menu contains a number of controls. We discussed the DC trigger on page 23. We will review the other settings below.

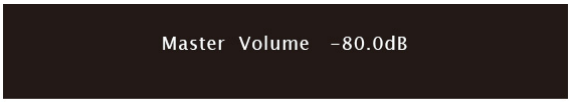
The "Volume Control" sub-menu includes several settings that govern the AV7005's main zone volume control. The first is "Volume Display," which can be set to "Relative" or "Absolute." In "Relative" mode, the volume display will range from -90.5dB to 18dB. In "Absolute" mode, the volume display will range from 0 to 99. The second setting is "Volume Limit" which defaults to "Off" (no limit) but can be set to "-20dB", "-10dB", or "0dB." These settings restrict how high the volume can be set. The "Power On Level" setting determines what volume setting is used when the AV7005 is first turned on. The default is "Last," which retains whatever volume setting was in use when the unit was last on. The other options are "---" (muted at start) and anywhere from "-80dB" to "18dB." Finally, the "Mute Level" setting determines how the mute function works. Options are "Full" (completely mute audio), "-40dB" (reduces the volume by 40dB), or "-20dB" (reduces the volume by 20dB).

The "Source Delete" sub-menu allows each of the AV7005's inputs (BD, DVD, VCR, SAT, GAME, AUX1, USB, TV, CD, SIRIUS, TUNER, and M-XPort) to be included in or excluded from the list of inputs available when using the SOURCE SEL or INPUT ▲ and ▼ buttons. Any input set to "Delete" in this sub-menu will be excluded from that list.

The AV7005's video processor and some of its special features allow it to provide extensive information on the TV screen. The "GUI" sub-menu provides control over much of this information. A screensaver can be enabled, and when set to "ON" the

screensaver will be engaged after three minutes of inactivity any time a setup menu, tuner screen, or iPod screen being displayed. The "Wall Paper" setting selects between a "Picture" background image (Marantz logo) or a "Black" background (no image). The video format can also be set to either NTSC or PAL. NTSC is the video format used in North America, while PAL is the video format used in Europe. If this is set to a format that is not compatible with your display, the picture will not be displayed properly.

On-Screen Text Overlay



On-Screen Volume Overlay

Two forms of on-screen overlays (information superimposed onto the video sources) are the master volume control and text detailing surround mode, input, and other adjustments. These two can be controlled separately. The "Text" setting can be set to "ON" or "OFF" to determine whether on-screen overlays are provided when operations such as changing surround modes or inputs occur. The "Master Volume" setting can be set to "Bottom," "Top," or "OFF" to determine where or if the volume is displayed on-screen when volume adjustments are made. The "Top" setting is useful for avoiding conflicts with movie subtitles. Neither "Text" nor "Master Volume" will be overlayed onto HDMI video inputs. Finally, the "NET/USB," "TUNER," and "iPod" settings control on-screen information for the network and USB sources (USB mass storage devices), the TUNER source (FM/AM and Sirius), and an iPod. Options for each include "Always" (on-screen information always shown), "30sec" (on-screen information shown for 30 seconds after a command), "10sec" (on-screen information shown for 10 seconds after a command), and "OFF" (no on-screen information provided).

The AV7005 has two component outputs, as well. The first output is always tied to the main zone, but the second output (Component Output 2) can be linked to the main zone or to zone 2, and the "Component 2 Output" setting determines which. When set to "Main Zone," the Component 2 output will provide the same video output as Component 1. When set to "Zone 2," the Component 2 output will serve as a monitor output for zone 2.

"Zone Rename" allows the Main Zone, Zone 2, and Zone 3 to be given custom labels. Each can be edited using the same interface described on page 61 for editing input names.

The "Display" setting controls behavior of the AV7005's front panel display. The options are "ON" (display is always on), "Display Auto Off" (display is only on when a command is issued and shortly afterward), and "Display Off" (display is always off). This setting can also be adjusted using the DISPLAY button on the front panel.

The next setting in the *Manual Setup* menu is "Setup Lock." When set to "On," this setting prevents any changes from being made in the setup menus.

The "Maintenance Mode" option should only be used when directed to by a Marantz service engineer, Outlaw Audio customer support, or a custom installer.

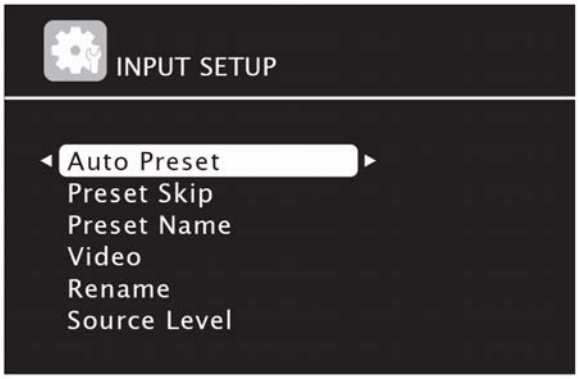
The AV7005's network connection can be used to update the processor's firmware over the Internet. The last two settings in *Manual Setup* relate to firmware updates. The first, "Firmware Updates," can be used to check for updates and install updates if they are available. Select "Check for Updates" to find out if new firmware is available and how long a firmware update will take, or use the automatic notification ("Update Notification") described back on page 54 to allow the AV7005 to report when updates are available. Select "Start" to begin the firmware update process.

The last option in *Manual Setup* is "Add New Feature." In some cases, Marantz will provide firmware updates that expand the AV7005's feature set. These firmware updates are installed separately from the firmware updates mentioned above, as they may involve most extensive changes. You can use the automatic notification ("Upgrade Notification") described on page 55 to allow the AV7005 to report when these updates are available. If one is available, select "Upgrade" to begin the installation process. Select "Upgrade Status" to get a list of new functions offered by the current update.

Firmware updates involve replacing significant pieces of the AV7005's internal software. You must leave the AV7005 turned on throughout a firmware update, and you should expect it to take anywhere from fifteen minutes to an hour to complete the process. Also, we recommend recording your settings prior to any firmware update, as the AV7005 may be forced to erase your settings as part of the update process. If an update fails, press and hold the "ON/STANDBY" button on the front panel for at least five seconds. "Update retry" should appear on the front panel display and the update should re-start. If it does not, unplug and re-insert the power cord and try again.

Input Setup

The Quick Setup Guide covered this menu in great detail. In that section, we addressed the *Input Assign*, *Video*, and *Input Mode* sub-menus. We recommend using that section and the pages from the AV7005 User Manual referenced below to locate any information you might need about the settings they contain. In addition to the Quick Setup Guide, the page numbers listed below will bring you to the relevant portions of the AV7005 User Manual.

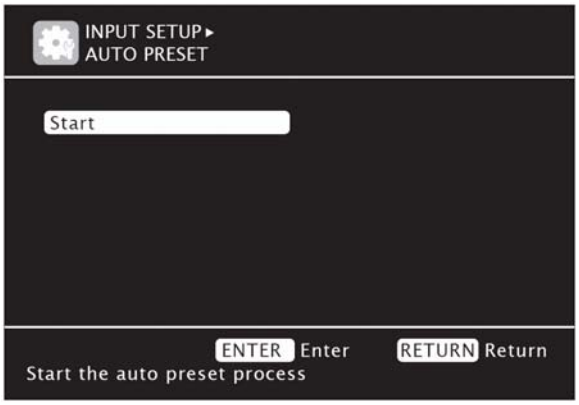


Input Setup Menu

- Auto Preset: *Page 67*
- Preset Skip: *Page 67*
- Parental Lock: *Page 67*
- Antenna Aiming: *Page 68*
- Preset Name: *Page 68*
- Input Assign: *Pages 68-69*
- Video: *Pages 69-70*
- Input Mode: *Page 71*
- Rename: *Page 71*
- Source Level: *Page 71*
- Playback Mode: *Page 71*
- Still Pictures: *Page 72*

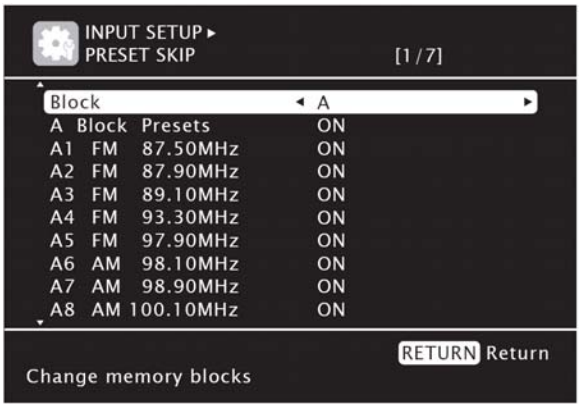
As with several previous settings, the options available in the *Input Setup* menu will vary depending on which input is selected. To change inputs, you must exit the setup menu and then re-enter the menu. All settings in this menu will be applied solely to the active input.

When the tuner is the active input, the *Input Setup* menu includes a number of sub-menus relating to that input. The first one is *Auto Preset*. Other sub-menus include *Preset Skip*, *Preset Name*, and *Antenna Aiming*. If the active input is SIRIUS Radio, the *Preset Skip, Parental Lock*, and *Antenna Aiming* sub-menus will be available.

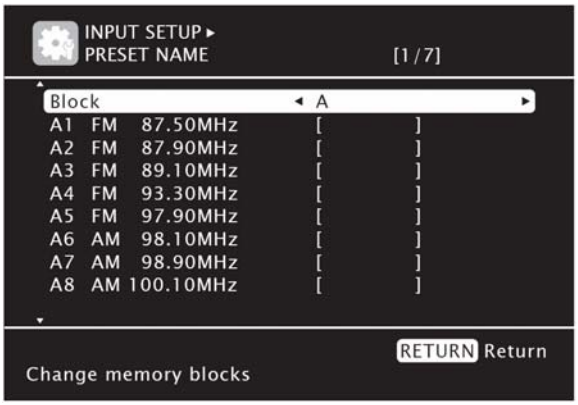


Auto Preset

The *Auto Preset* sub-menu has only one option: "Start." This will start the auto preset process, and the AV7005 will scan for all available FM stations and create presets for them.



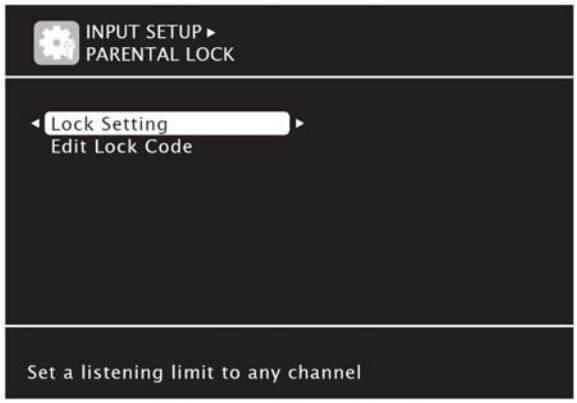
Preset Skip Sub-Menu (Tuner/SIRIUS)



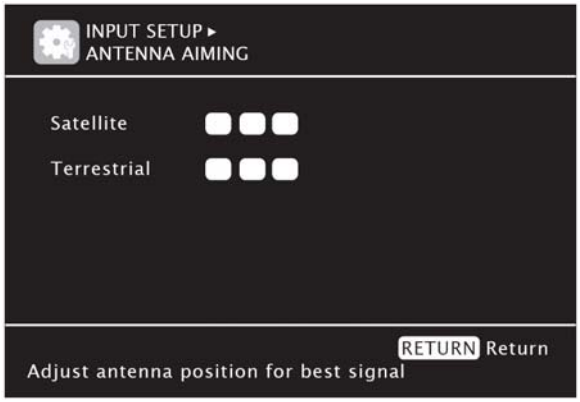
Preset Name

The *Preset Skip* sub-menu allows any of the 56 presets (eight channels in each of the seven groups) to be set to "Skip" instead of "On". When set to "Skip," the preset will be hidden from view when scrolling through presets using the "Preset -" and Preset +" buttons on the remote. The "Block" setting allows the user to select which of the seven preset blocks (A through G) to see, and for each block the menu provides options for showing or hiding the entire group ("_ Block Presets") and showing or hiding individual presets 1 through 8 for that group. If an entire group is hidden, individual presets cannot be adjusted. The *Preset Skip* sub-menu can be useful for hiding presets created by the auto tuning process that you aren't interested in or hiding presets that are empty.

The *Preset Name* menu allows any AM or FM radio preset to be given a label with up to eight characters. As with *Preset Skip*, the "Block" setting at the top of the sub-menu will scroll through the seven preset blocks (A through G). For each block, the eight presets will be shown as well as a "Default" setting that can be used to reset all labels to their default. Setting "Default" to "Yes" will erase all preset labels. Editing the labels uses the same interface as editing input names. See the *Rename* menu on the next page for details on this interface.



Parental Lock



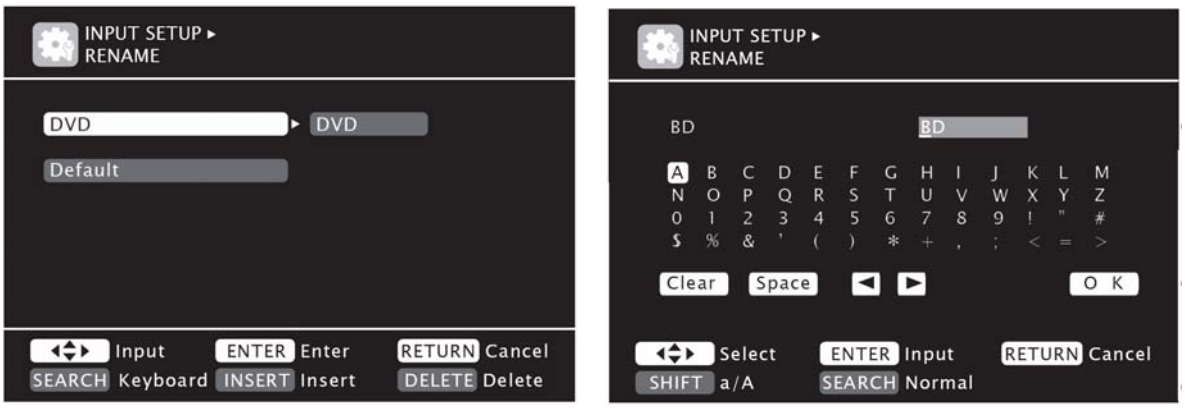
Antenna Aiming

SIRIUS satellite radio supports having a parental lock on select stations. The *Parental Lock* menu allows the user to set a four-digit lock code (the default is "0000") and adjust the lock settings. The "Lock Setting" sub-menu provides a list of channels to select, and each can be set to "Unlock" or "Lock." To enter that menu, you must input the password. To change the password from the default, use the "Edit Lock Code" option. You will be prompted to enter the current password, after which you can enter a new four-digit password, enter it a second time to confirm it, and select "Execute" to set the new code.

The *Antenna Aiming* menu provides a report of signal strength for both SIRIUS satellite radio and terrestrial AM/FM radio. The strength is reported as a range of 0 to 3, with 0 being no signal and 3 being an excellent signal. This menu can be useful in adjusting antenna aiming to optimize reception.

The *Input Assign*, *Video*, and *Input Mode* sub-menus were discussed in detail in the Quick Setup Guide. They start on page 20.

The *Rename* sub-menu allows editing of the default input names. As an example, the "SAT" entry might make more sense if it were labeled "CABLE". The *Rename* sub-menu allows that. This is another setting that is applied only to the active input. Each input label can contain up to eight characters.

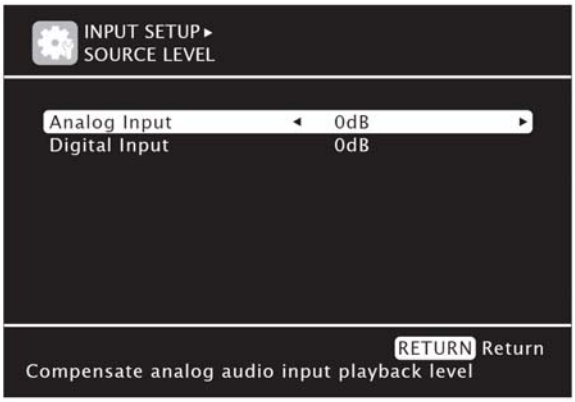


Rename Sub-Menu - Normal and Keyboard Modes

When the *Rename* sub-menu is selected, the active input name will be highlighted. Press ► to begin editing this input's name. The normal input screen (above left) will be used by default, but by pressing the "SEARCH" button on the remote you can change to the keyboard input screen (above right). In the normal input screen, the ◄ and ► buttons are used to move the cursor to the position you wish to change and the ▲ and ▼ buttons are used to scroll through the available characters (uppercase letters, lowercase letters, numbers, and symbols). When complete, press "ENTER" to accept the edited input name. In the keyboard input screen, the cursor keys (◄, ►, ▲, and ▼) are used to highlight characters from the list at the bottom and the "ENTER" button is used to select them. The "[a/A]" option toggles between uppercase and lowercase letters, the "[SP]" selection is a space bar, and the "[←]" and "[→]" keys move the cursor

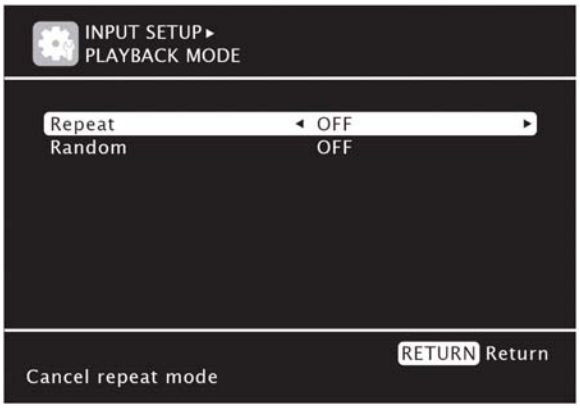
left and right. When the input name is complete, highlight the "[OK]" button and press "ENTER" to accept the new name.

A third way of editing input names is the Web Control interface. See page 71 for a tip regarding this feature.



Source Level Sub-Menu

The *Source Level* sub-menu provides two adjustments. Each provide level adjustment from -12dB to +12dB for the active source's audio level. The first adjustment is "Source Level (A)" which affects analog audio input. The second adjustment is "Source Level (D)" which affects digital audio input. The two can be adjusted separately for any input that has an "HDMI" or "Digital" connection listed in the *Input Assign* sub-menu. Sources that don't have an HDMI or digital audio connection selected will only allow for analog audio level adjustment.



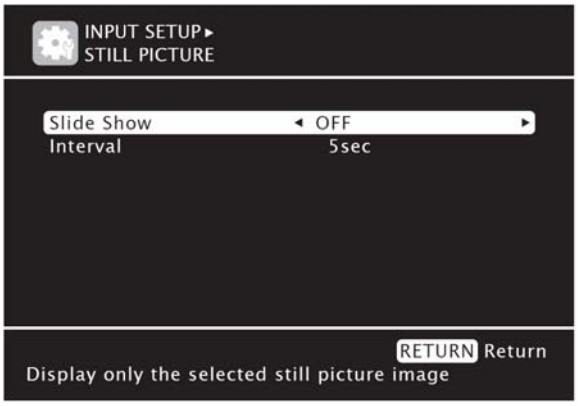
Playback Mode Sub-Menu

The next sub-menu under *Input Setup* is *Playback Mode*, which is only available for the USB input. This sub-menu contains two adjustments: "Repeat Mode" and "Shuffle Mode". Each setting has separate options for iPod playback and USB mass storage device playback.

"Repeat Mode" for iPod playback can be set to "All" (all files played back repeatedly until playback is stopped manually), "One" (a single file is played back repeatedly until

playback is stopped manually or a new file is selected), and "Off" (no repeat play). "Repeat Mode" for USB playback can be set to "All" (all files played back repeatedly until playback is stopped manually), "One" (a single file is played back repeatedly until playback is stopped manually or a new file is selected), and "Folder" (all files in the selected folder are played back repeatedly until playback is stopped manually).

"Shuffle" for iPod playback can be set to "Songs" (shuffle all songs on the iPod), "Albums" (play individual albums and shuffle albums as each is completed), "and "Off" (no shuffle). "Shuffle" for USB playback can be set to "On" or "Off."



Still Picture

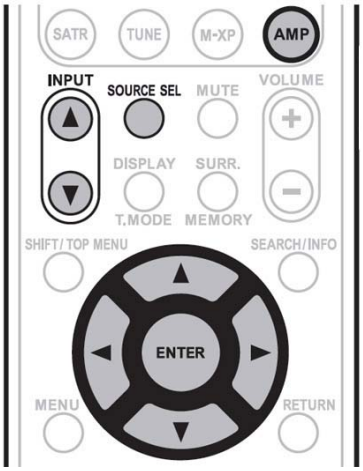
The final sub-menu under *Input Setup* is *Still Picture*. This sub-menu contains two settings. The first is "Slide Show," which when set to "On" will cause the AV7005 to display groups of JPEG image files in a folder as a slide show. When set to "Off," the AV7005 will display each image file individually, and the user will manually scroll through images in a folder. The "Interval" setting determines the time that each image is displayed during a slide show. The minimum time is five seconds, and the maximum time is 60 seconds.

Introduction to Inputs

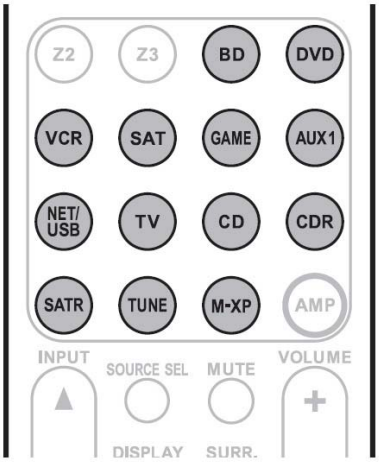
The rear panel of the AV7005 is well-stocked with audio and video inputs. Those inputs include digital (HDMI for audio and video, coaxial and optical for audio) as well as analog (component and composite video, stereo and multichannel analog, and even a phono pre-amp). These all behave similarly to what surround sound processors and receivers have included before. In addition to those inputs, however, the AV7005 is also equipped with a USB port that supports both USB mass storage devices (memory sticks and external USB hard drives) and iPods and a network connection that provides an array of network services.

Audio and Video Sources

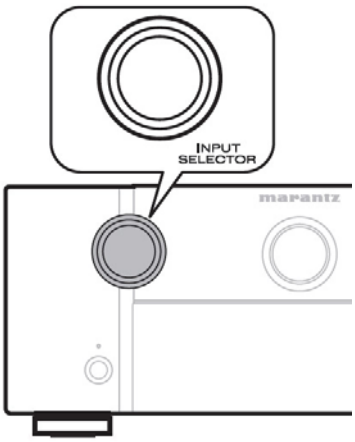
As home theaters have evolved over the last two decades, we have retained some familiar patterns. One of these is the way audio and video sources connect to the receiver. A traditional source is a device (CD player, VCR, DVD player, game console, etc.) that has an audio and maybe a video output, and we connect those outputs to the receiver. Once that is done, we pick a button on the receiver's remote to select those connections. The receiver then plays whatever the source provides, and we control that source directly. For most sources, we still do this. The old stereo analog audio cables and composite video cable have often been replaced by coaxial and optical digital audio, component video, or HDMI digital audio/video, but we still rely on the same familiar process.



Input Selector Buttons on Remote Control



Direct Input Buttons on Remote Control



Input Selector Knob on Front Panel

Earlier in this manual, we spent significant time making connections from audio and video sources, identifying what connections those sources were using, and even editing the labels for those sources' assigned inputs. All of that effort pays off when we start using the AV7005 because it allows us to conveniently retain the familiar process of pressing a button on the AV7005's remote and having it "just work" with the source we just picked. This can be done either by using the INPUT ▲/▼ buttons or the SOURCE

SEL on-screen menu and the navigation pad to pick the input. A second option is to use the input source select buttons, pressing the desired button twice in a row (once to set the universal remote to control the device and once to change the AV7005's input). Lastly, we can use the input selector knob on the front panel of the AV7005 to scroll through the inputs.

If you connected an RX101 to the M-XPort for use with a Bluetooth audio source such as a computer, the M-XPort input works the same as the other sources we've described above. Once you select the input "M-XPort" the AV7005 will play whatever audio the Bluetooth device transmits to the RX101.

USB Sources

As our home theaters have evolved, they have begun to merge more and more with our home computers. One way in which that has happened is through support for playback of computer media such as audio files or image files. The AV7005 offers a front panel USB port, which can be used as an audio source. It can be selected in the same manner as the other sources described in the previous section. Unlike the other sources we have discussed, however, it also allows the AV7005 to directly control the source. It even provides an on-screen video interface. Two types of USB sources are supported: mass storage devices and iPods.

A **USB mass storage device** can be an external hard drive, a USB memory stick, or any other disc-based or solid-state computer memory device that has a USB interface. The AV7005 can only read from mass storage devices that have been formatted as FAT or FAT32 partitions. This is the standard format for USB memory stick, and it is commonly used on external hard drives as well. If necessary, large external hard drives can be formatted to a single FAT32 partition using free tools such as SwissKnife.

The AV7005 can read and play the following audio and image file types:

- MP3 audio files (.mp3), including support for ID3v2 tags
  32/44.1/48 kHz and 32-320 kbps
- WMA audio files (.wma), including support for META tags
  32/44.1/48 kHz and 48-192 kbps
- MPEG-4 AAC audio files (.aac / .m4a / .mp4)
  32/44.1/48 kHz and 16-320 kbps
- WAV files (.wav)
  32/44.1/48 kHz and 16 bit
- FLAC Free Lossless Audio Codec files (.flac)
  32/44.1/48/88.2/96 kHz
- JPEG image files (.jpg)

Copy-protected WMA and AAC files are not supported. The AV7005's monitor outputs (HDMI, component, and composite video) provide an on-screen interface for navigating the folders, and MP3 file album art will be displayed on screen during playback.

The AV7005's front USB port can also be connected to an **iPod**. Once connected, the AV7005 can play audio files stored on the iPod, including files that are copy-protected. Unlike USB mass storage devices, which appear simply as folders of files, iPods can be controlled through the AV7005 exactly the same as if you were holding the iPod in your hand. The AV7005 is compatible with iPod Classic, video iPods, iPod nano (1st through 5th generations), iPod Touch (1st and 2nd generations), iPhone, iPhone 3G, iPhone 3GS, and iPhone 4.

There are two control modes available for use with an iPod: Remote mode, and Direct mode. In Remote mode, the AV7005's remote can control the iPod and iPod information is displayed on the TV through the AV7005's monitor outputs, but the iPod's display is blank. In Direct mode, the iPod information is displayed on the iPod only and the AV7005's remote cannot control the iPod. All of the compatible iPods support Direct mode, but some iPods will not work in Remote mode. This includes the iPhone, which can only operate in Direct mode.

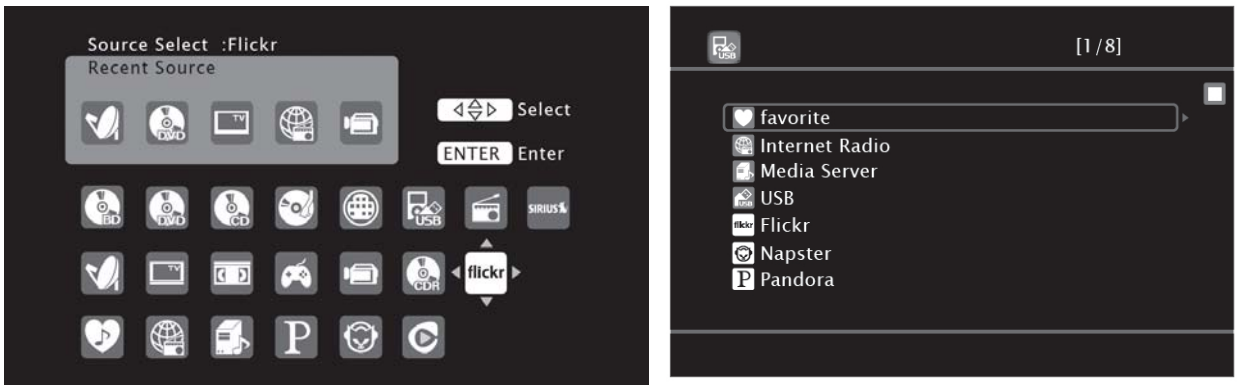
The diagram below shows the controls available for playback of files stored on USB mass storage devices and for operation of iPods in Remote mode.

Operation Button	USB	iPod
Preset +,-	Preset channel selection	
▲▼◄►	Cursor operation / Auto search (cue, ▲▼)	Cursor operation / Auto search (cue, ▲▼) / manual search (press and hold, ▲▼)
Enter (press & release)	Enter / Pause	Page Search / Character Search
Enter (press & hold)	Stop	Stop
Search	Page Search / Character Search	Remote / Direct mode switching
Return	Return	Return
◄◄ ►► (press & hold)		Manual search (fast-reverse/fast-forward)
►	Playback / Pause	Playback / Pause
|◄◄ ►►|	Auto search (cue)	Auto search (cue)
||	Pause	Pause
■	Stop	Stop
1-8	Preset channel selection	
Shift	Preset channel block selection	
Repeat	Repeat playback	Repeat playback
Random	Random playback	Random playback

Network Sources

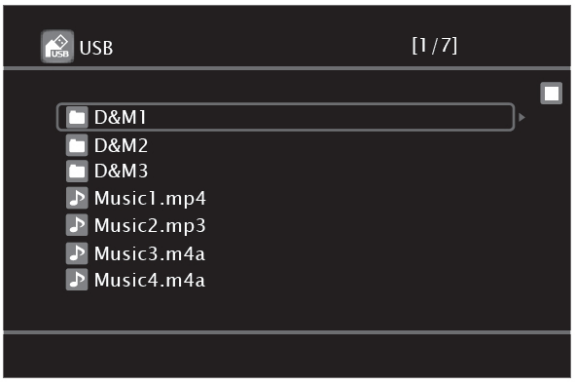
The AV7005's network connection allows it to access a wealth of remote audio sources as well as several image file sources. There are so many that the AV7005's manual dedicates a number of pages (from page 34 to page 43) to these sources. The instructions below will provide a brief introduction to several of the AV7005's network features, however.

The Network input is actually an array of possible sources, as seen in the screenshots below. There are two ways to select a network source. The first is to use the SOURCE SEL button on the remote to bring up the screen below (left), and the second is to press the NET/USB button on the remote twice to bring up the screen below (right).



Source Selection Menu and Net/USB Input Menu

Many of us have amassed large collections of audio files on our computers, either music files ripped from CD's or files bought online. Getting access to those files via our home theater systems is a challenge that frequently gets asked about. The consumer electronics industry has also wondered about this. One solution is a standard called **DLNA**. DLNA stands for Digital Living Network Alliance, and it is a group formed by consumer electronics, computer, and software companies to help streamline the process of creating a home network that can support entertainment. There are a number of widely-used programs available that are DLNA-compatible servers. Most standalone NAS (Network-Attached Storage) servers include or will support a DLNA-compatible server. In addition, a number of Windows, Mac, and Linux programs exist that are either free or inexpensive. Free servers include PS3 Media Server, Tversity, and Firefly Media Server. Other common servers include PlayOn and Twonky Media. Any of these can be installed on a computer on the home network and configured to share your media files. The AV7005 can connect to any DLNA v1.5-compliant server on your network and access music and picture files. By selecting "Media Server" using either of the two ways shown above, you can access your DLNA media server. When multiple servers are available on your network, the AV7005 will list each one separately.



USB File Browser (Media Server interface similar)

The server's shared folders can be browsed using the interface shown above. Supported file types for music include MP3, WAV, FLAC, WMA, and AAC. WMA lossless and encrypted files are not supported. Also supported are .m3u and .wpl play lists. Supported image file types include JPG. The chart below shows the controls available when using the Media Server mode.

Operation Button	Media Server
Preset +,-	Preset channel selection
▲▼◄►	Cursor operation / Auto search (cue, ▲▼)
Enter (press & release)	Enter / Pause
Enter (press & hold)	Stop
Search	Page Search / Character Search
Return	Return
►	Playback / Pause
|◄◄ ►►|	Auto search (cue)
||	Pause
■	Stop
1-8	Preset channel selection
Shift	Preset channel block selection
Memory	Favorites / Preset memory registration

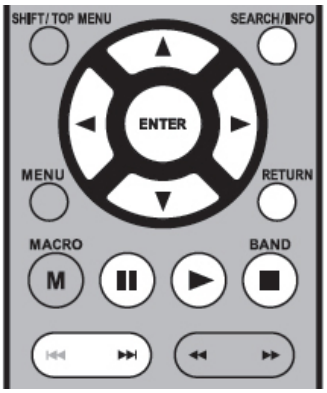
In addition to the DLNA support, the AV7005 can connect to several music services, including Internet radio stations, Rhapsody, Napster, and Pandora. It can also connect to the image file storage site Flickr. Each of these services can be selected from the same screen that was used to select the DLNA media server.

Rhapsody requires an account, and users must pay a monthly fee to maintain a membership. It provides users access to all of the music in the service's library.

Napster, like Rhapsody, requires an account and a monthly fee. It also provides full access to the service's music library. In both cases, users need to enter their account information to use the service. The chart below shows the controls available for music playback using both Rhapsody and Napster music services.

Operation Button	Rhapsody	Napster
Preset +,-	Preset channel selection	Preset channel selection
▲▼◄►	Cursor operation / Auto search	Cursor operation / Auto search
Enter (press & release)	Enter / Pause	Enter / Pause
Enter (press & hold)	Stop	Stop
Search	Search menu / Page Search	Page Search / Character Search
Return	Return	Return
►	Playback / Pause	Playback / Pause
⏮ ⏭	Auto search (cue)	Auto search (cue)
⏸	Pause	
■	Stop	Stop
1-8	Preset channel selection	Preset channel selection
Shift	Preset channel block selection	Preset channel block selection

Pandora is a service that provides customized "radio stations" based on music you like. Accounts can be either free (with occasional ads) or paid with a monthly subscription. It is based on a program called the Music Genome Project, which is a database that analyzes music and seeks to identify similarities between individual songs. The result is an ability to predict whether a listener will like a song based on other songs that listener has identified as liking. Pandora uses this database to create music playlists for its users. By logging in to Pandora through the AV7005, a user can listen to their personal stations. The chart below shows the controls available when using the AV7005's Pandora service.



Operation Button	Pandora
▲▼◄►	Cursor operation / Auto search
Enter (press & release)	Enter / Pause
Enter (press & hold)	Stop
Search	Page Search
Return	Return
►	Playback
►►|	Auto search (cue)
||	Pause
■	Stop

The Internet radio interface is similar to the AM/FM tuner, including the ability to store presets. A detailed overview is included in the AV7005 User Manual on pages 35 and 36.

Flickr is a photo sharing service. Users may view their own photo albums, albums shared with them by other Flickr members, and images posted that are publicly accessible. Below is a chart of controls available when using Flickr or Internet radio with the AV7005.

Operation Button	Internet Radio	Flickr
Preset +,-	Preset channel selection	Preset channel selection
▲▼◄►	Cursor operation	Cursor operation
Enter	Enter	Enter
Enter (press & hold)	Stop	Stop
Search	Page search/ Channel Search	Page search
Return	Return	Return
■	Stop	Stop
1-8	Preset channel selection	Preset channel selection
Shift	Preset channel block selection	Preset channel block selection

Many users of the AV7005's network and USB sources may want to adjust a default setting in the AV7005's setup menus to prevent the AV7005 from turning off the on-screen display for these modes. By default, the NET/USB, tuner, and iPod on-screen displays will turn off after 30 seconds (resulting in a blank screen). These three settings can be changed to "Always" so the on-screen display shown on the TV will remain active. See page 57 for a description of these settings.

Tips and Tricks

The following items detail several features, capabilities, shortcuts, and conveniences that we felt deserved some special mention.

Multiple Inputs Configured for a Single Source

The *Listening Modes* menu allows a great deal of control over which listening modes are used with each input and audio format, but there may still be cases where more control flexibility is needed. Some users may prefer to use two different listening modes for a single audio format from the same source. An example would be a DVD player that is also used as a CD player. When listening to CD's, the preferred listening mode for stereo/PCM may be "Stereo" or even "Direct." When watching DVD's, you may want to listen to the occasional stereo/PCM material in "Pro Logic IIx Movie" or "All Stereo." Similar cases may exist with other sources. Manually changing the listening mode is an annoyance in cases like this.

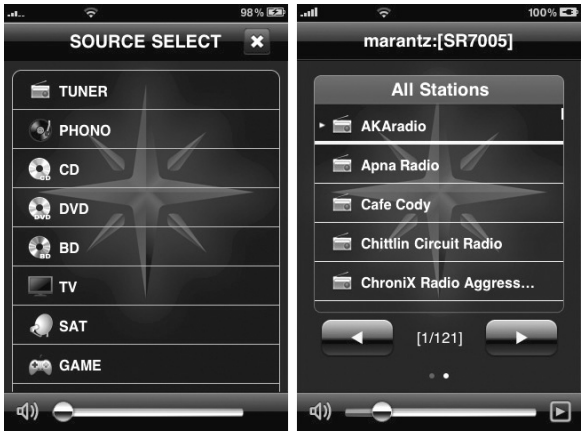
One solution is to configure more than one input for a single source. Stereo analog inputs, the multichannel analog input, and HDMI inputs can only be associated with a single input, but the coaxial and optical digital inputs can each be assigned to multiple inputs. A coaxial digital audio cable from one source could be assigned to both the CD and the DVD inputs, each using different listening mode preferences, and the user need only select a different input. Because HDMI and component inputs can only be assigned once, video from one source can be duplicated onto a second source using the "Source Select" menu entry under the "Video" submenu of *Input Setup*. When using an audio-only input such as CD, a specific video input can still be viewed by selecting the video input before selecting the CD input (the video switching will remain in its previous state).

Web Control interface

The AV7005's Ethernet connection is associated with several features: firmware updates, network audio and image file playback, and control. The last of those features is called "Web Control" and allows a web browser to serve as a full-featured remote control. This feature is discussed in detail on pages 58 and 59 of the AV7005 User Guide, but of particular note on those pages is the ability to access the setup menus through this interface. The Web Control interface allows easier renaming of inputs and zones, easier access to settings that are stored separately for each input (such as the *Video* sub-menu under *Input Setup*), and convenient control over the USB/NET input functions. If you have the AV7005 connected to a network, this can be a very convenient way to make setting changes and control playback of USB or network media. The "Setup Menu" portion of the Web Control interface has a section called "Source Select" that allows for access to settings in the "Input Setup" menu, including a pull-down menu to change the active input and a place to edit input names. Web Control's Setup Menu page can also allow access to the *Information* menu without interrupting your movie or TV show.

If you plan to use the Web Control interface on a regular basis (whether with a laptop or netbook computer, an iPad, or an iPhone or iPod Touch), you may want to make sure that the AV7005 consistently has the same IP address so that you can bookmark it. This can be done by setting your router's DHCP server to always issue the same IP address

to the AV7005's MAC address or by manually assigning an IP address in the AV7005's *Network Setup* sub-menu (under *Manual Setup*). A simpler alternative is to set the "Network Standby" setting to "On" (under *Manual Setup* | *Network Setup* | *Other*, as described on page 54). In this case, the AV7005 will retain its network connection even when in standby, and in most cases that will allow the AV7005 to keep the same IP address with your home network's DHCP server. This approach may sometimes lead to a different IP address, however, especially if there is a prolonged power outage.



Marantz Wizz App screenshots

An alternative to setting the IP address is to use the free iPhone app provided by Marantz. The app is called "Wizz App" and it will locate any AV7005 or SR7005 receiver on the local network. The app does not offer on-screen access to the setup menu, but it does provide remote control functions. These functions include volume control, input selection, surround mode selection, and menu access and navigation (using the "Cursor Control" option).

Discrete Remote Codes

One of the great conveniences offered by many third-party universal remotes is the ability to create *macros*: single-button controls that issue multiple commands to carry out a specific task. When creating macros, discrete remote commands (particularly for "power on" and "power off" commands) are highly sought after. The AV7005's remote clearly identifies its discrete "power on" and "power off" commands: the "On" and "Standby" buttons. In addition, however, it offers a number of other discrete codes. These include a button ("HDMI") to toggle the HDMI monitor output from HDMI Out 1 to HDMI Out 2, a button ("MULTEQ") for adjusting the equalization mode, and several processing mode buttons mentioned on page 39.

The AV7005 supports additional discrete remote codes, which can be accessed if you are using a programmable universal remote. Marantz provides a data file on their web site that includes "hex code" IR remote data files in .xls Excel format. The Excel file contains the hexadecimal codes for each discrete remote command, and most programmable remotes will accept that data. Available commands include direct selection of Pro Logic II/IIx and DTS Neo:6 modes, Dynamic EQ on/off functions, Dynamic EQ offset values, Dynamic Volume settings, several network modes (Rhapsody, Napster, Pandora, etc.), and additional processing modes.

Audyssey Dynamic Volume and Dynamic EQ Function
Audyssey Dynamic Volume is an excellent feature, particularly when watching TV programs with objectionably loud commercials. It is not always appropriate, however. The "DYN EQ/VOL" button on the remote control can provide a convenient way to engage, disengage, and adjust this function as needed. This same button will engage and disengage Audyssey Dynamic EQ.

Adjusting Channel Levels "On the Fly"
The speaker levels are set in the *Speakers* Level sub-menu and many can also be adjusted in the *Channel Level* sub-menu, but it is also possible to adjust individual channel levels manually without entering the setup menu. To make these changes, select the "CH LVL" button. The display will list the speakers and their channel trim settings. Scroll through the available speakers using the ▲ and ▼ buttons, and use the ◄ and ► buttons to adjust the setting for each speaker. Press "CH LVL" again when finished.

Using Audyssey and External EQ's
The AV7005 offers Audyssey MultEQ XT, which is a very sophisticated room correction and equalization system that evaluates the system based on measurements taken from up to six different locations in the room. In most cases, users who apply any equalization will rely solely on Audyssey MultEQ XT. Audyssey MultEQ XT can be used in conjunction with other equipment, however. Systems such as the Velodyne SMS-1 can provide very effective equalization for the subwoofer, for example. When mixing Audyssey MultEQ XT with one of these systems, you should first configure the external device while Audyssey is not engaged. After the external equalization is adjusted properly, the AV7005's automatic setup can be run and Audyssey can apply its adjustments in partnership with the external adjustments.

Lossless Audio Output and Audyssey
Some earlier Marantz receivers were not able to apply equalization modes such as Audyssey MultEQ XT when decoding lossless audio bitstreams such as Dolby TrueHD or DTS-HD Master Audio. The AV7005 does not have this limitation. You may use the bitstream audio output from a Blu-ray player's HDMI port and still make use of Audyssey functions such as MultEQ XT, Dynamic Volume, and Dynamic EQ.

Manual Setup
Earlier in the manual, we mentioned that to manually set the speaker levels, a sound power level meter (SPL meter) should be used. We also mentioned two options for such an SPL meter. The first is the traditional Radio Shack analog meter, a device that has been a staple of home theater setup since the 1990s. We also suggested that users not overlook a possible alternative: smart phone apps. The iPhone App Store offers a number of apps that can be found by searching for "SPL meter". Some of these, such as SPL Meter by Studio Six Digital, even mimic the Radio Shack meter's appearance. These apps offer accuracy equal to the analog Radio Shack meter, but at a fraction of the price.

Dimming the Front Panel

Ambient light control is important to the total home theater experience. With that in mind, the AV7005 offers a way to turn off the front panel display. The DISPLAY button (available on both the remote control and the front panel) toggles between three options. The first will cause the front panel to display current volume level in place of the surround processing mode. Pressing DISPLAY a second time will select "Auto Display" mode, in which the front panel display will only turn on when a change occurs (volume, input, surround mode, etc.). Pressing DISPLAY a third time will select "Display Off" mode, in which the front panel display is disabled entirely. Pressing DISPLAY a fourth time will return the front panel display to normal. You can also enable or disable lighting around the main display by holding down the front panel DISPLAY button for three seconds.

Keep A Record of Your Settings

This guide includes a handy way to record some input-related settings: the Connection Summary Sheet. Obviously, that only helps with some of the settings required to get the AV7005 configured in the event of a system reset. The Quick Setup Guide and Roadmap to the Setup Menus combine to mention every menu available on the AV7005, however, and a few notes in those two sections – even just some settings circled and a few numbers jotted in the margins – could serve as a convenient record for future reference.

Resetting the AV7005

To reset the AV7005, turn the unit on and go to the front panel. Hold down the SURR. MODE and CLEAR buttons for three seconds. This will erase all user settings and radio station presets, returning the unit to its default state. For this reason, we suggest that you use the Connection Summary Sheet and Listening Modes Menu reference sheet to record your settings before a reset. You will also need to re-run the Audyssey MultEQ XT system and restore tuner memories after a reset.

Locking the Front Panel

Some owners may wish to disable the front panel controls. This can be a useful feature in households where small children can reach the equipment and make undesirable changes (turning the unit off, turning the volume up). There are two options. The first is to disable all front panel controls, which is done by placing the unit in standby mode and then pressing "ON/STANDBY" while pressing and holding the "AUTO" and "DISPLAY" buttons. The second option is to disable all front panel controls except the volume control knob, which is done by placing the unit in standby mode and then pressing "ON/STANDBY" while pressing and holding the "PURE DIRECT" and "DISPLAY" buttons. To cancel any panel lock functions, place the unit in standby mode and then press "ON/STANDBY" while pressing and holding the "▼" and "DISPLAY" buttons.

Troubleshooting

Pages 112 through 114 of the AV7005 User Guide offer a detailed list of troubleshooting suggestions. We have compiled a shorter list here to cover the most common problems that are likely to be encountered. If the list below does not resolve the issue, the more extensive list in the AV7005 User Guide may help. Outlaw Audio customer support is also available during regular business hours (EST) at 866-688-5292, as is Outlaws' online forum (the Outlaw Saloon, available by clicking on the Hideout near the top of our website, www.outlawaudio.com, and selecting the "Outlaw Hideout" saloon doors).

No Audio Output

- Verify that pre-amp outputs are properly connected to power amplifier and that speakers are properly connected to amplifier.
- Verify that power amplifier is turned on.
- If a 12V trigger cable is used to turn amplifier on, verify that trigger cable is connected and that trigger is enabled in setup (see page 23).
- Verify that correct input is selected and that input is set to use correct analog or digital audio connection (see page 25).
- Verify that headphones are not plugged in.
- Verify that unit is not muted. When muted, MUTING indicator will flash on front panel display.

No Video Output

- Verify that a video output is connected to the TV, that the TV is on, and that the TV is set to the correct input (see pages 6 through 8 for video output connection).
- Verify that the video source is connected to the AV7005 and the current video input is configured to use that video connection (see pages 9, 10, and 25).
- HDMI video inputs will only be available at the HDMI video output. Verify that the TV is not displaying the component or composite video output when the active video input is HDMI.
- Verify that the correct HDMI output is active using the HDMI button on the remote control of the HDMI OUT button on the front panel.
- For analog video inputs, verify that Pure Audio is not selected as the current listening mode.
- For long HDMI cables, verify that overall cable length does not exceed ten meters (approximately 35 feet). For overall cable lengths between three and ten meters, test individual cables (connect directly from source to display or AV7005 to display) to isolate possible cabling faults.

On-Screen Menus Not Available

- Verify that the display is turned on and set to the correct input.
- Verify that the menus have not been locked. See page 88 of the AV7005 User Manual.

No Audio/Video at Record Outputs

- For audio record output, verify that the active input is connected using stereo analog audio cables.
- For video record output, verify that composite input is connected for the active video input.
- Verify that recorder is set to the correct input.
- For video recording, verify that Pure Direct listening mode is not active. Pure direct will disable video record output.

Remote Control Does Not Work

- Press the AMP button to control the AV7005.
- Verify that the AV7005's remote sensor window is not obstructed.
- Check batteries and replace if needed.

Front Panel Controls Do Not Work

- Front panel lock is enabled. place the unit in standby mode and then press "ON/STANDBY" while pressing and holding the "▼" and "DISPLAY" buttons to cancel any front panel lock modes.

Notes

Notes

Notes

Notes

www.outlawaudio.com