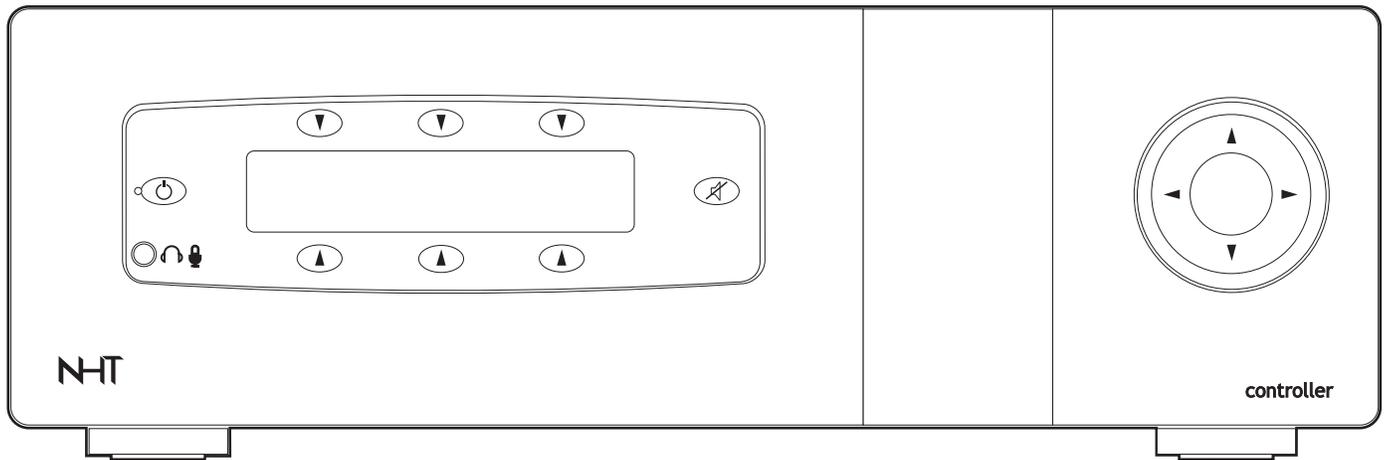


Controller



user guide

Ver 3.06b



Now Hear This..

6400 Goodyear Road, Benicia, CA 94510

800-NHT-9993

Licensing acknowledgements

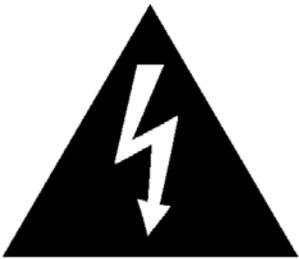
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	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
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The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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



Marking by the "CE" symbol (shown left) indicates compliance of this device with the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards of the European Community.

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

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

Important Safety Instructions

- **Read These Instructions**
- **Retain These Instructions**
- **Heed All Warnings**
- **Follow All Instructions**
- **Water and Moisture** - Do not use this product near water. Do not place any objects filled with liquids, such as vases, on top, above or near the apparatus.
- **Cleaning** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Clean only with dry cloth.
- **Ventilation** - Do not block any ventilation openings to protect the unit from overheating. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
- **Heat** - Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- **Grounding** - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- **Power Cord Protection** - Protect the power cord from being walked on or pinched particularly at plug, convenience receptacles, and the point where they exit from the apparatus.
- **Lightning and Periods of Non-Use** - For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.
- **Servicing** - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when a power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- **Accessories** - Only use attachments / accessories specified by the manufacturer.
- **Overloading** - Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electrical shock.
- **Power Sources** - This product should be operated only from the type of power source indicated on the marking label.

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Thank you!

Thanks for your investment in the Controller. We worked hard to make the Controller easy and intuitive to use and ultra-flexible to fit a variety of applications with state-of-the-art performance and features. In addition, the Controller can offer performance beyond any component of its type when used with NHT speakers and amplifiers. The reason for this is all the NHT speaker details have been programmed into the Controller. The nuances of this and levels of integration is better left for technical papers that you'll find on our website nhthifi.com, and no doubt reviews in enthusiast magazines.

Should you be using the Controller with non-NHT speaker and amplifier systems, don't worry, you'll still realize a level of performance, sophistication and control previously unavailable. Please enjoy.

Since the Controller will have regular software updates available, this user guide will be updated as well. Please visit www.nhthifi.com for current updates of this user guide.

Introduction

The Controller is a very sophisticated home theater controller and it is the center and the heart of a high-end audio/video system.

When NHT speakers and amplifiers are used with the Controller, the system's performance is further optimized and automated. For example, all NHT speaker parameters for bass management (high pass, low pass filters, eq and phase) are programmed into the Controller. This feature also eliminates as many as 20 setup screens.

All NHT components also feature the NHTBus which allows smart control, communication, and status monitoring between components. This exclusive bus performs tasks like switching the components in or out of standby together and can even turn off any unused amplifier channels, saving energy, reducing heat and improving the performance of the active amplifier channels. The Controller also features three 12VDC trigger outputs and an RS-232 interface for compatibility with wide range of home automation systems.

The Controller decodes Dolby Digital, DTS and DTS-ES digital audio formats and has the latest audio processing features like Dolby Pro Logic IIx. Naturally, the Controller can also function as a High-End stereo preamplifier. In addition, a 7.1 channel input is provided with comprehensive volume and bass management facilities. This ensures that the Controller will remain compatible with new multi-channel formats to appear in the future.

For two channel audio sources the Controller can perform mono downmixing, Pro Logic IIx and DTS Neo:6 decoding and add ambience with music modes. For multi-channel analog sources the Controller can generate the surround channels utilizing Dolby Digital EX or DTS-ES Matrix processing. If desired, the discriminating audiophile can bypass the digital section of the Controller completely by connecting, for example, a stereo source to the Left and Right channels of the 7.1 analog channel input.

For the quick setup, Auto Calibration automatically calculates the correct speaker distances and level settings.

Unpacking

Store all packing materials for later use, if possible. You will need the packing materials, if you have to ship your Controller. (Trust us, you'll be moving some day, so keep the packaging!)

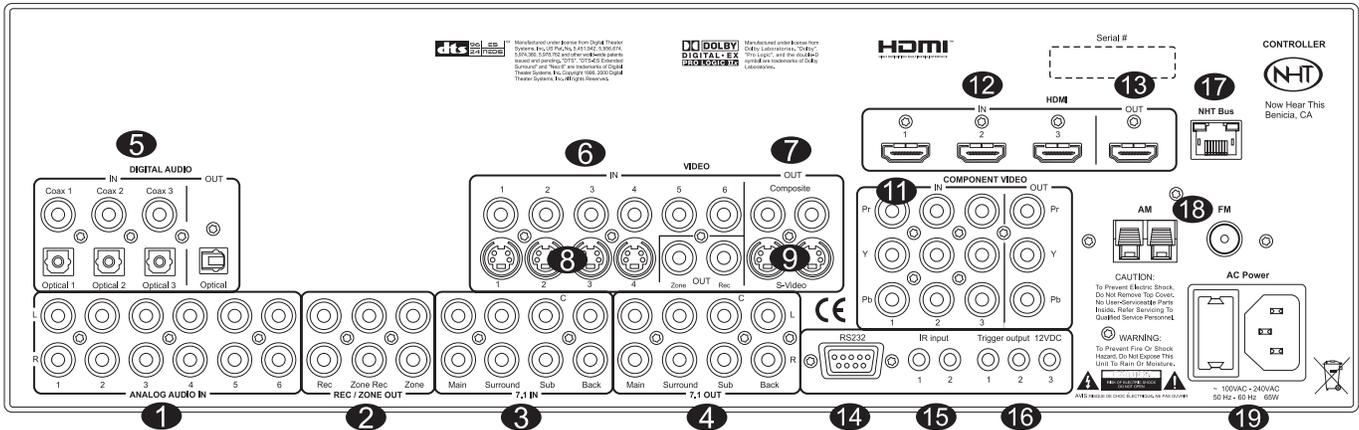
Included Accessories:

- Power cord. (IEC type) - US 115V and 230V for EU and many Asia-Pacific countries.
- RJ 45 cable for the NHTBus feature
- 12V trigger cable
- Antenna adaptor for the tuner
- Remote control with two AAA battery
- Calibration microphone with one AA battery

Main features

- 6 analog stereo inputs
- 6 composite video inputs
- 4 S-Video inputs
- 3 component video inputs
- 3 HDMI 1.1 compliant digital audio/video inputs
- On Screen Display available on all video outputs including HDMI
- Touch controls for every function - no mechanical switches
- Proximity detection sensors make the Controller more intuitive to use
- A simple, intuitive remote control
- 3 coaxial digital audio inputs
- 3 optical digital audio inputs
- External 7.1 channel analog input jacks
- NHTBus Ethernet connectivity
- Zone B functionality, audio and composite video
- AM/FM RDS Tuner

Connections



Audio Connections

1. Analog audio inputs: Connect your analog sources (tape decks, VHS recorder, phono preamp, etc) here.

2. Analog audio outputs: In addition to the main 7.1 channel outputs, Controller has the following analog outputs:

- **REC output:** this mirrors the signal of the currently selected analog input
- **Zone REC:** this mirrors the currently selected ZONE input.
- **ZONE output:** is the signal currently selected by the ZONE input. This output has separate volume control capability from the main outputs.

3. 7.1 Channel input: This is multi-channel analog input, where you can connect your multi-channel source, such as an SACD or DVD-A player.

4. 7.1 Channel output: This is the main output section. Use these terminals to connect to your amplifiers inputs.

5. Digital audio connections: Connect your digital sources (DVD-players, CD-players) here. Coaxial and optical type input terminals are available. One output terminal is available, which mirrors the optical incoming digital input stream.

Video Connections

The Controller supports four different video format types: composite video, S-Video, component video and HDMI, listed in order of increasing video quality. The basic rule of thumb is to use always the best available connection type to transport signals between devices.

To mix 'n' match different sources and display devices with different input and output types, Controller supports video format conversions. The following video format conversions are available in the Controller unit:

- Composite and S-Video inputs are available on component and HDMI video outputs
- S-Video inputs are available on HDMI, composite and component video outputs
- Component video inputs are only available on component video outputs
- HDMI inputs are only available on the HDMI output

Note: No scaling or de-interlacing are performed on any incoming video input signal.

The Controller has the following video connectors:

6. Composite video inputs: Connect your video source with composite output to these jacks.

7. Composite video outputs: Connect your display or video recorder with composite video input to these jacks.

8. S-Video inputs: Connect your video source with S-Video output to these jacks.

9. S-Video outputs: Connect your display or video recorder with S-Video input to these jacks.

10. Component video inputs: Connect your video source with component video outputs to one of the component video inputs.

Note: Viewing any device connected to the component video inputs requires you to connect the component video output on the Controller to your video display device.

11. Component video output: Connect your video display device with component inputs to these jacks.

Note: *One component video connection consists of three RCA type jacks, as each one of the RCA jacks carries one "component" of video signal.*

HDMI Connections

12. HDMI audio/video inputs: Connect any video sources equipped with HDMI outputs to these jacks.

13. HDMI audio/video output: Connect your display device to this jack if so equipped.

Note: *The Controller's HDMI inputs and output support standard, enhanced, or high-definition video, and Dolby Digital, DTS and 2 channel PCM digital audio formats on a single cable.*

Note: *To view any device connected to the HDMI video inputs requires you to connect the HDMI video output on the Controller to your video display device.*

Note: *The Controller's "On Screen Display - OSD" is available on the HDMI output! Your display must be compatible with 480i and 576i resolutions (standard NTSC and PAL resolutions).*

Note: *Component video is NOT available on HDMI output at this time.*



WARNING: *HDMI capable displays should only be connected to one of the HDMI out connections. Connecting the display to the HDMI In connection will cause serious damage to both the Controller and the display.*

Control Connections

14. RS-232 serial port: This is a standard RS-232 compatible serial port. This port can be used to link Controller in a home automation system or for software upgrades and system setup with proprietary PC software.

15. IR inputs: Connect your infrared sensors here. Controller supports Xantech and compatible infrared repeaters with 1/8" mono connectors. An external power supply is required for most IR sensors.

16. Trigger outputs: Triggers are 12V control lines, which can be used to control and trigger other appliances in your home theater setup (like screens and shades). Usually these control power amplifier channels and turn them off, when Controller is in standby mode. For more details on this feature, see **Trigger setup**, page 28.

17. NHTBus: The NHTBus is the communication line for NHT components. When connected together, such functions as auto turn on, standby, muting of unused amplifier channels and error reporting to the controller happen automatically. Please note that this totally eliminates the need for the Trigger connectors when hooking the Controller to any NHTBus component. If there is not a sufficient number of NHTBus connectors available to hook all the NHT components together, you can purchase a standard network (Ethernet) hub and use that as the central connection point for all components.

The NHTBus uses a standard Ethernet network protocol. When connected to your home network, DHCP capable server or router, DHCP will automatically assign an IP address to each component connected by the NHTBus. More information about the NHTBus can be found on the NHT web site www.nhthifi.com.

Tuner

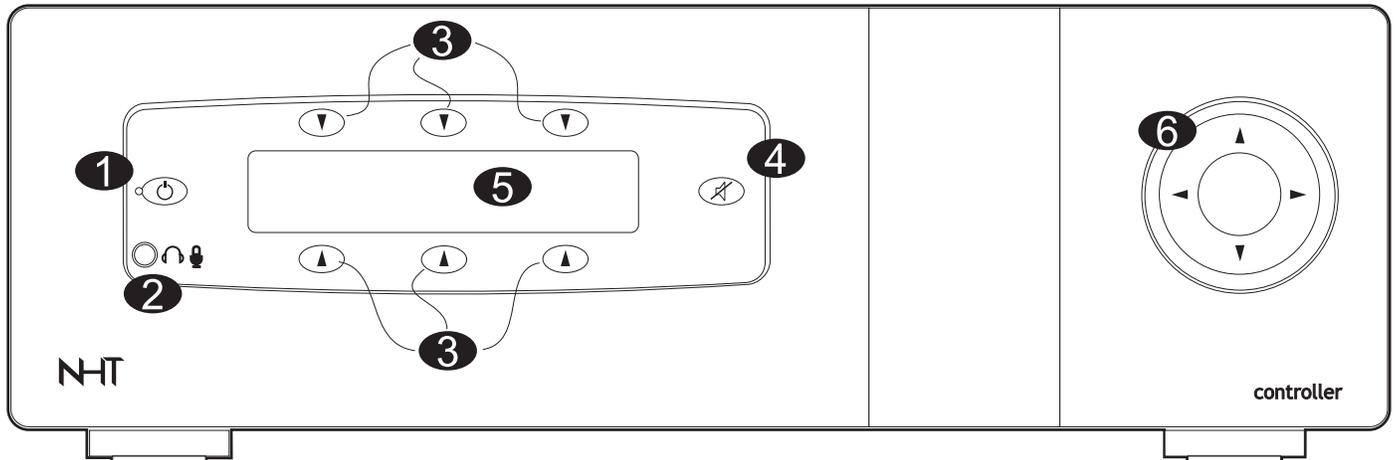
18. Tuner antenna: Connect the FM (75 ohm) or AM (300 ohm) antenna here to receive radio broadcasts with your Controller's built in AM/FM stereo tuner.

Power

19. Power inlet: Connect the supplied power cable to this connector. The unit has a switch mode power supply and accepts input voltages between 100 - 250 VAC.

Note: *Do not turn main power off from the back of the unit before switching into Standby mode from the front panel or remote control. Failing to do so might cause loss of the latest settings.*

Front Panel



Front Panel Features

1. Standby switch: Use this switch to turn the unit ON from STANDBY and vice versa.

2. Headphone output / calibration microphone input: This jack has a dual purpose. Headphone jack accepts any standard headphone with a 1/8-inch/3.5mm jack. The jack also is used to connect the included calibration micro-phone during level and distance calibration (see section **Speaker Setup**, page 19).

3. 6 Function Select Touch Buttons: Functions of these buttons appear as markings on the display window. A light touch with your finger onto the button marking on the surface is all that is required.

4. Mute: Turns on and off mute relays. If the unit is muted, no audio signal passes to the main output terminals.

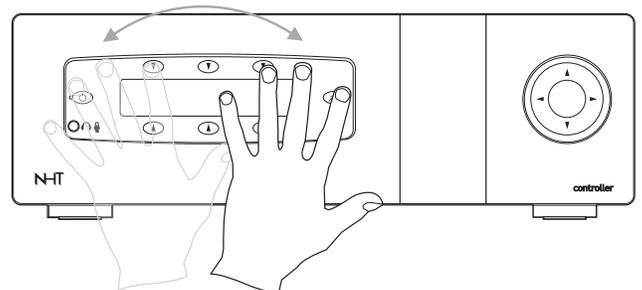
5. Display: 2 x 20-character display provides information on the current system status. In normal operating mode, information about current source, incoming signal type, processing mode and volume level is available simultaneously.

6. Touch Wheel: Volume control and navigation control. To control volume, brush your finger around the matte textured "donut" lightly and slowly. Moving your finger clockwise increases volume and turning it counter-clockwise decreases volume. This control also is used as a standard navigation control when in setup mode. Touch the blue arrows for up / down / left / right and/or use the "wheel" to select values.

Note: Unlike conventional electronics which use electro-mechanical switches, the Controller uses soft touch controls. In other words, don't expect to hear a click when you press buttons.

Note: Please be aware that the touch wheel is very sensitive and can easily go to full volume very quickly possibly damaging your speakers, amplifiers and ears and startling your loved ones. A light touch, with conservative movements is all that is required.

Proximity Feature



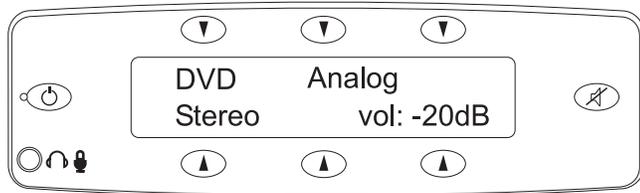
The Controller features proximity detection sensors. As you move your hand towards the display window the display wakes up and changes from the current status (source, volume, listening mode and input type) to the start screen (first three sources plus mode and setup) When you move your hand away, it returns to status mode (and after a few seconds the display goes dark). The front panel display has two settings, "always on" and "auto off". When set to "auto off" the display will go dark after 10 seconds (see **Misc Setup / Display** on page 28).

If you have a door on your equipment rack which interferes with the proximity feature, the proximity feature can be turned on and off (see **Misc Setup / Proximity Mode**, page 28).

Front Panel Screens

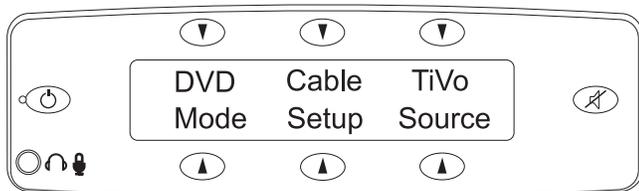
■ Status Screen

In status screen the front panel display shows current source, input signal type, current sound processing mode and output volume level.



■ Start screen

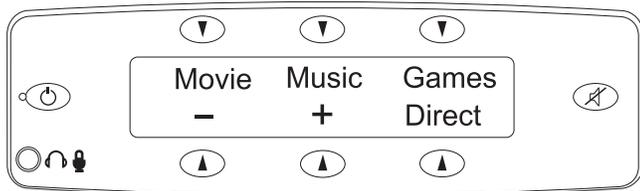
Proximity sensors activate the start screen. When your hand gets near the front panel the display shows the first three sources on the top row and additional control functions on the bottom row. When you move your hand away, the status screen returns after a few seconds.



Pushing the "Mode" button opens the (sound) Mode screen. Pushing the "setup" button opens the main setup menu. Pushing the "source" button opens the source screen.

■ (Sound) Mode Screen

In the sound mode screen, four shortcut keys are displayed, which enable selection of user defined "favorite sound modes" .



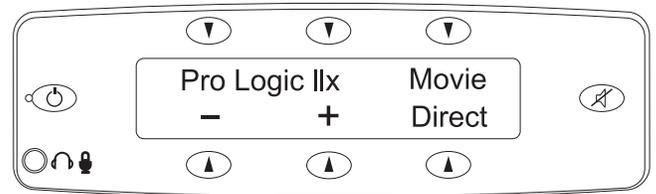
Movie selects the sound mode for viewing movies.

Music selects the sound mode for listening to music.

Games selects the sound mode for Game play.

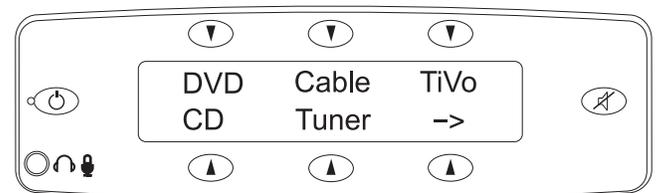
Direct turns all sound processing off and plays the incoming signal directly.

Alternatively, plus and minus keys allow manual selection of the sound mode. In this case, the top row text changes to reflect the currently active sound mode.

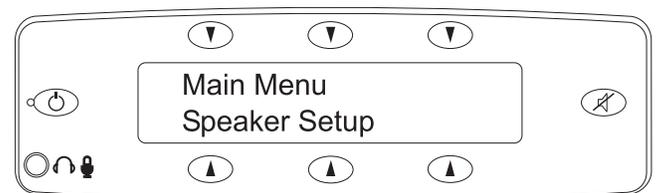


■ Source Screen

In the source control screen, five direct source choices are shown. The sixth key has an arrow symbol, which advances the page and brings up the next five sources. A maximum of ten sources is available.



■ Setup Screen



The setup screen is the main menu for all of the Controller's setup functions. Press the up and down arrow on the Touch Wheel to scroll thru the available setup screens. Press the right arrow on the Touch Wheel to enter any setup function.

Note: While it is possible to setup the Controller using its front panel display and controls, simpler, more comprehensive setup options are available using the Controller's on screen display (OSD) and remote control.

If you are unable to setup the Controller with the on screen display (OSD) and remote control, here's how the front panel controls operate:

- The Touch Wheel has navigation arrows for menu navigation.
- The items on the menu are selected by pressing the right arrow key on the Touch Wheel.
- Parameters in the setup menu are adjusted by using left and right arrow keys on the Touch Wheel.

Remote Control

1. Standby switch turns the power of the unit on and off (to stand-by mode).

2-5. Source buttons select the desired input source component. Direct selection keys for the first 4 sources. Program your most often used sources here.

6. Direct
 7. Movie
 8. Music
 9. Games

See **Audio setup / Favorite Mode** section on page 25.

The keys 7 through 9 are shortcut keys that can be individually programmed for your 3 favorite processing modes (2-channel and multi-channel Movie, Music or Games modes available).

10. OK button is used to confirm selection.

11-12. Source Up and Down arrows are used to select the input source and, when in the Menu mode, to move between menu items.

13-14. Volume buttons control the sound volume and change values in the Menu mode.

15. Menu button is used to enter the Menu structure. See more in chapter 5, "Setup and Menus".

16. Esc button exits Menu without saving.

17. Dyn button refers to dynamic compression. It decreases the loud volume passages and raises the low volume level for less volume variation so that movies can be watched (usually late at night) with less disturbance. The Dyn feature only works with Dolby Digital signals.

18. Status button sends unit status information to the video screen.

19. Mute turns the sound completely off. It does not mute recording outputs.

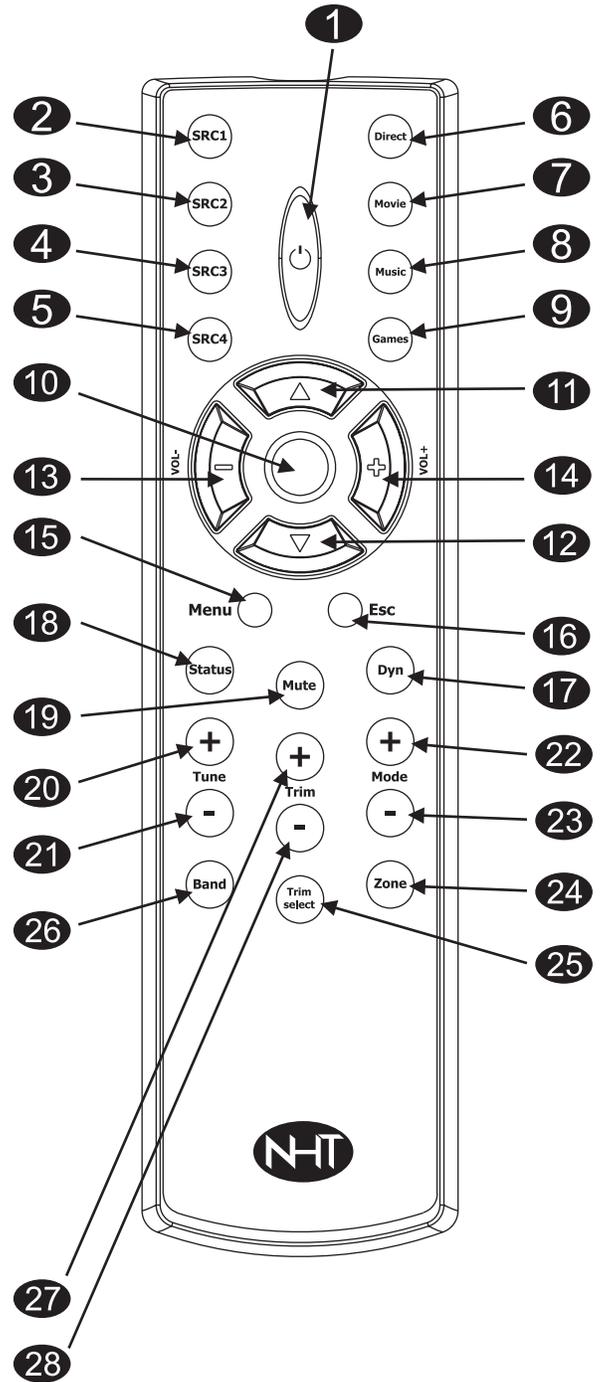
20-21. Tune + and - are used to select the wanted radio channel in the AM/FM Tuner.

22-23. Mode + and - buttons select between the sound modes that are available for the current sound source.

24. Zone buttons controls Zone output settings. See more in the chapter about the Zone function.

25. Trim select activates Trim mode, in which you can increase or decrease speaker volume. Press Trim select several times to select the wanted speaker groups to the display and Trim + and - to set the volume, bass and treble.

26. Band button selects the wanted radio mode AM or FM.



27-28. Trim + and - buttons increase and decrease the currently selected trim level.

Zone Function

The Zone outputs allow you to send an independent line level audio and composite video to a second room. The Zone output is activated by pressing the Zone key on the remote control. When in the Zone mode, standby, volume and source selection keys only change the signal at the Zone Output and Zone REC Outputs. Pressing the Zone key on the remote again will return you to the normal/main operational mode. The Zone mode will also automatically "timeout" after a few seconds if subsequent keys are not depressed or after an output selection is made, putting the remote and Controller's functions back to the normal/main mode.

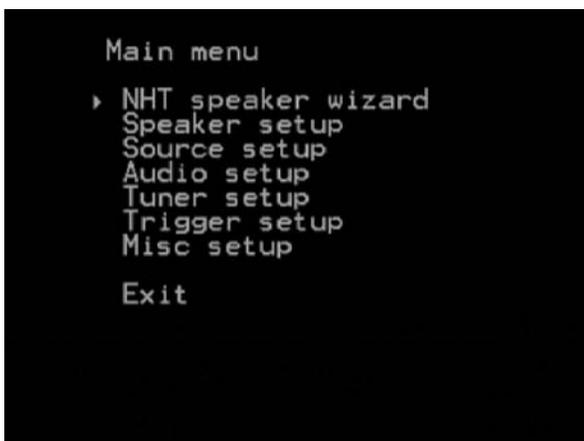
Setup and Menu

The Controller is very flexible and can be customized in almost every aspect. In this chapter we go through the Controller's menu system and look at how you can setup your system to best suit your needs.

To get the most out of your audio-video system, carefully read through this chapter. Even if someone else sets up your system, it is good to know all the possibilities the Controller can accommodate.

What can be done through the Menu?

The Main menu system is divided into the following submenus:



NHT speaker wizard - If you own NHT speakers, the Wizard automatically sets all the crossover frequencies and assigns EQ (as needed) to any combination of NHT speakers.

Speaker setup - Changes the Controller's speaker settings. You can also let Controller auto calibrate the settings. Both manual and automatic speaker calibration is available.

Source setup - Changes the parameters of the ten preset Sources and the AM/FM Tuner.

Audio setup - Changes the processing mode parameters and tone controls.

Tuner setup - Lets you set the tuner presets and modes like Auto or Manual tuning.

Trigger setup - There are three trigger jacks (i.e. external device controllers) on the back of the Controller and this menu changes the setting of the triggers. Two of them are programmable using this menu.

Misc setup - Lets you change things such as TV system format, proximity mode and setup lock.

NOTE: By far, the easiest way to use the Controller's menu is to connect a video monitor or TV to one of the Video Out jacks on the unit (for more on connections, see **Video connections**, page 8) and use the Controller's remote control to navigate the menus.

How to use the Menu with the Front Panel Controls and On Screen Displays

As previously mentioned, using the remote control and the OSD is the fastest and most intuitive way to use and setup the Controller and thus highly recommended.

Note: Analog level indicators are not shown on the front panel display and OSD is required for auto calibration and the naming of sources. All other settings can be accessed from the front panel.

Navigating the menus using the front panel controls

1. Wave hand near front panel or press any key adjacent to the MENU text on the front panel display to start. The text "Main menu" should now appear on the screen and OSD.
2. Enter the Menu by pressing the right arrow key.
3. In the selected menu, do as before - select the desired menu or submenu item by scrolling up and down with the touch wheel's up and down arrows (select with the right arrow).
4. When all changes are made, press the menu button again. Press the touch button adjacent to the EXIT on the display if you want to exit without saving changes.

Navigating the menus with the remote control

1. Press MENU button to start. The text "Main menu" should now appear on the Controller's front panel display and OSD will additionally display the seven menu setup options plus "Exit".

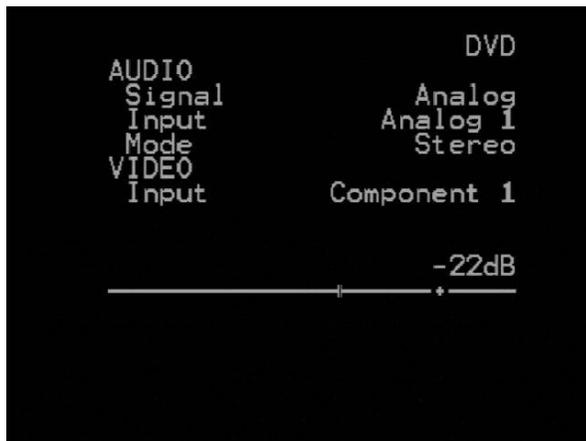
Note: Press ESC button on the remote at any time if you want to exit without saving changes.

2. Select the menu you want to edit using the Up or Down arrow button on the remote. The front panel display will show the menu name on the top row and selected item on the bottom row one at a time, while the OSD will show a small arrow in front of the menu item. Press the OK button to select the menu item.
3. In the selected menu do as before - go to the wanted menu item or submenus with the Up and Down arrow buttons and edit it with the remote control's Left and Right arrow buttons.

4. When all of the changes are made, exit the menu by navigating through the exit links. Pressing the MENU button on the remote directly exits and saves the settings from any menu level.

On Screen Display - Status

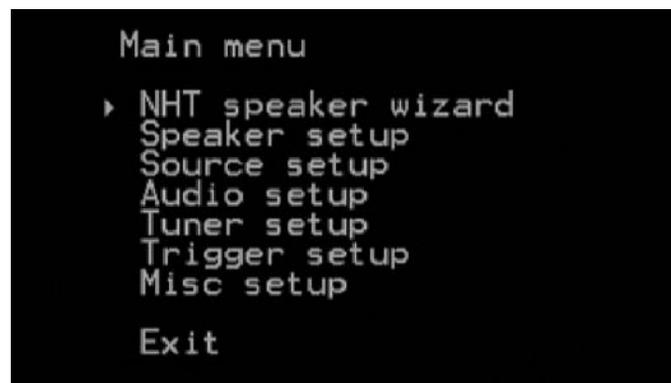
Pressing the STATUS button on the remote during normal operation will display the status of the Controller's Audio and Video assignments on the OSD.



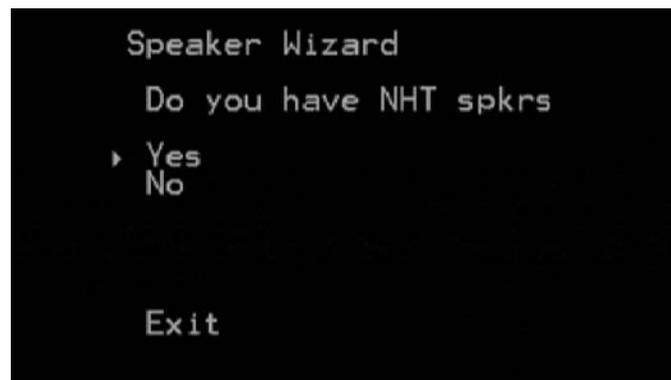
The STATUS screen shows the currently selected Source in the upper right corner (shown in our example as DVD). The volume is displayed with a number range from -90 to +20 (depending on the presets, levels and tone controls as well as input signals) and a horizontal line with a volume-tracking indicator that shows the current volume relative position to the entire volume range.

Audio Settings show the Signal type (examples: analog or digital), selected Input jacks used (examples: Analog 1, Coax 2, HDMI) and Mode (examples: Stereo, Pro Logic IIx Movie). Video Settings show the Input location and type (examples: Component 1, HDMI 3, Analog 1).

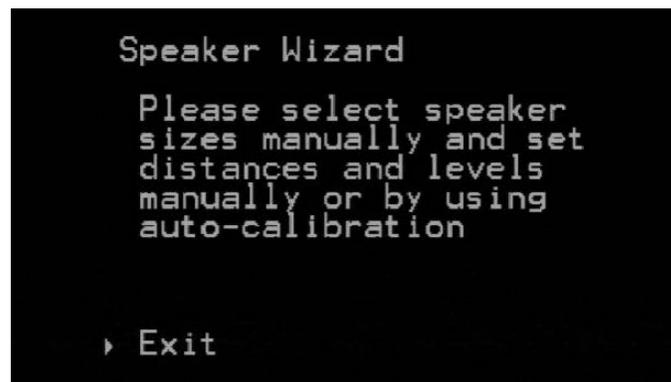
NHT Speaker Wizard



The Controller has every current NHT speaker and subwoofer model (and some older models too) factory pre-programmed. This will allow your system to perform at its very best while eliminating as many as 20 setup screens and your need to perform the role of speaker expert. The Wizard automatically sets all the crossover frequencies and assigns EQ (as needed) to any combination of NHT speakers!



If you have NHT speakers for some or all of your home theater setup, your life just got a lot simpler. Answer Yes to the Wizard's first question and away you go. If you aren't using any NHT speakers in your speaker setup, obviously answer No...you will be told to select the speaker sizes/distances/levels manually. Instructions for this immediately follow this Speaker Wizard section.



Run the Speaker Wizard again when you decide to upgrade any speakers in your setup to NHT.

Here is the Main speaker menu progression and secondary screens for each specific NHT product family for the Speaker Wizard. After selecting one of the NHT speaker family options on the left screen - Xd, Evolution, Super Audio, Classic or Architectural, you will be presented with the various model choices within that product family (except Xd which needs no further options). If you select Non-NHT Speaker, you will be taken to the center channel options menu (return and set the non-NHT Main speaker manually - later in this chapter). If you're not sure which NHT speakers you have, check the label on the back of each speaker for the model number on the serial number label.



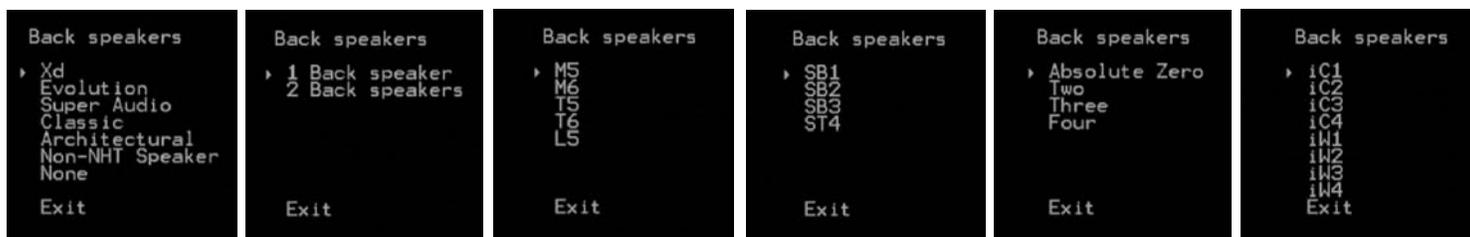
Here is the Center speaker menu progression and secondary screens for each specific NHT product family for the Speaker Wizard. After selecting one of the NHT speaker family options on the left screen - Xd, Evolution, Super Audio, Classic or Architectural, you will be presented with the various model choices within that product family (except Xd which needs no further options) in subsequent screens as shown. If you're not sure which NHT speakers you have, check the label on the back of each speaker for the model number on the serial number label. If you select Non-NHT Speaker, you will be taken to the Surround speaker menu (return and set the non-NHT Center speaker manually - later in this chapter). If you select None, you will also be taken to the Surround speaker menu and any further configuring for the center speaker is unnecessary.



Here is the Surround speaker menu progression and secondary screens for each specific NHT product family for the speaker Wizard. After selecting one of the NHT speaker family options on the left screen - Xd, Evolution, Super Audio, Classic or Architectural, you will be presented with the various model choices within that product family (except Xd needs no further options). If you select Non-NHT Speaker, you will be taken to the Back speaker menu (return and set the non-NHT Surround speaker manually - later in this chapter). If you select None, you will be taken to the Subwoofer speaker menu and any further configuring for the Surround speaker is unnecessary.



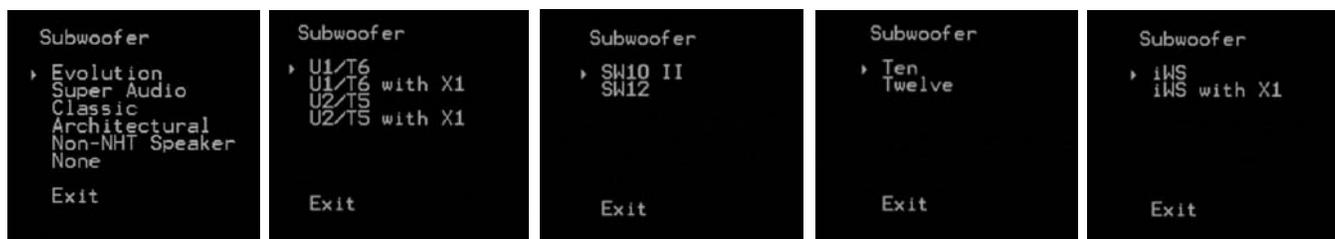
Here is the Back speaker menu progression and secondary screens for each specific NHT product family for the Speaker Wizard. After selecting one of the NHT speaker family options on the left screen - Xd, Evolution, Super Audio, Classic or Architectural, you will be presented with the Back speaker screen asking if you have 1 or 2 back speakers.



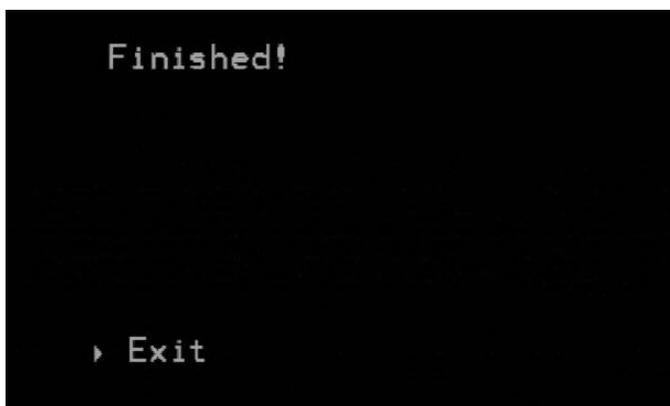
You will be then be presented with the various model choices within the product family you selected(except Xd needs no further options). If you select Non-NHT Speaker, you will be taken to the Subwoofer menu (return and set the non-NHT Back speaker manually - later in this chapter). If you select None, you will also be taken to the Subwoofer speaker menu and any further configuring for the Back speaker is unnecessary.

Here is the Subwoofer speaker menu progression and secondary screens for each specific NHT product family for the Speaker Wizard. Notice Xd is missing from this list*! After selecting one of the NHT speaker family options on the left screen - Evolution, Super Audio, Classic or Architectural, you will be presented with the various model choices within that product family. If you select Architectural the Controller will need to know if you have purchased it with or without an X1. Return and set the non-NHT Subwoofer manually (later in this chapter). If you select None, you will also be presented with the Automated setup screen. No further configuring for the Subwoofer is necessary.

* The Xd subwoofer should always and ONLY be connected to the XdA digital integrated amplifier. Consult the Xd manual for more information or just take our word for it.

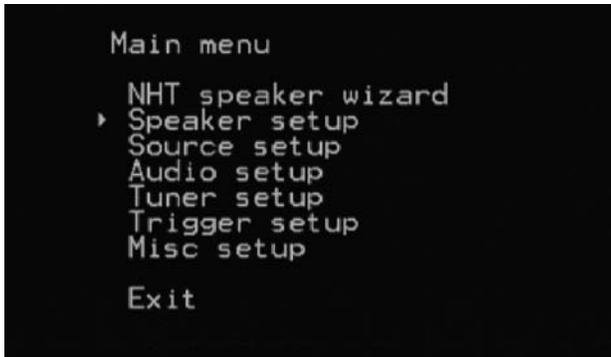


Congratulations, you're almost done with speaker setup. If you selected Non-NHT speakers for any of your available speakers, Exit to save your changes and proceed to configure your Non-NHT speakers manually using Speaker Setup from the Main menu. If you have all NHT speakers, thanks and proceed to the Speaker setup menu and run Auto Calibrate after that. Skip to the Auto Calibrate section and get ready to enjoy your system.

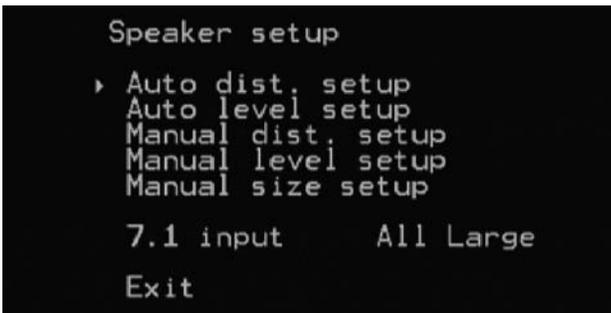


Remember to save your settings by moving the cursor to "Exit" and press the "Ok" button on the remote. If you want to cancel your settings, press Esc on the remote.

Speaker Setup



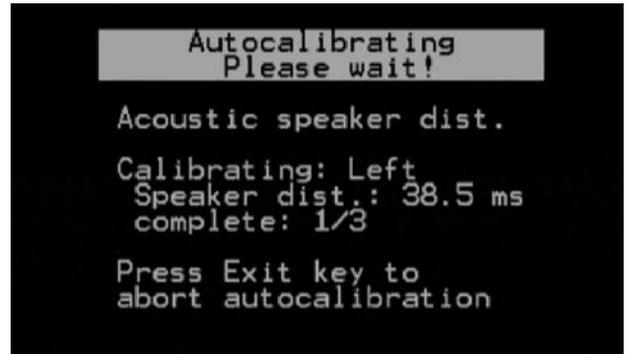
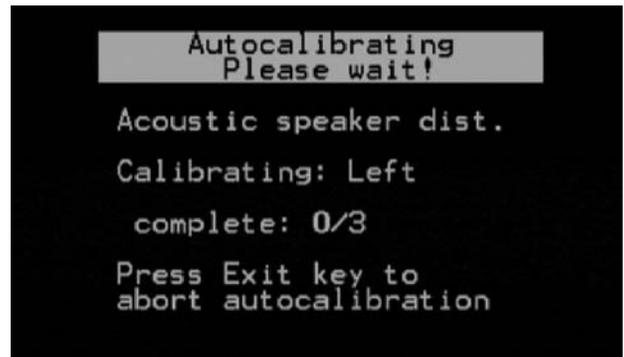
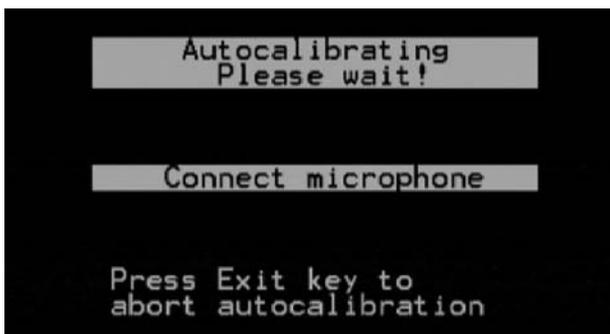
Auto distance setup



To avoid difficult and not very precise manual calibration, the Controller's speaker levels and distances can be automatically set using the auto calibration feature (Auto distance setup /Auto level setup). For this, you will need the room to be quiet, as well as the included microphone and cord provided with the Controller.

To auto calibrate the system, do the following:

1. Make sure a fresh battery is inserted into the microphone and connect it to the Controller front panel combo headphone/microphone jack. Turn the microphone on from its switch (small dot indicates "On" position).
2. Please connect the microphone to the combination headphone/microphone jack ONLY when prompted by the OSD.
3. Sit in your normal listening position and hold the microphone in your hand or use a microphone stand of some kind. Hold the microphone pointing straight up in front of you.



4. With the cursor arrow on "Auto dist. setup" and press the OK button.

The auto dist(ance) setup will run 3 tests per speaker while measuring the distance. The screen shot here shows the auto calibration has just completed 1 of 3 tests on the Left main speaker. The next pass will show 2/3 and finally 3/3 and then move on to the next speaker until completed.

When Auto distance setup is successfully completed, readings in the Auto distance setup are changed. If not, make sure calibration was successfully completed.

Auto distance setup works the same way as the Auto level setup. Sound signals are sent to each speaker and the response time is measured.

Note: If left and right speakers' distance (response time) varies more than 2 ms, you will be notified. This variation can often be balanced with right delay, but to reach optimal surround sound, consider moving your speakers into a more symmetrical position.

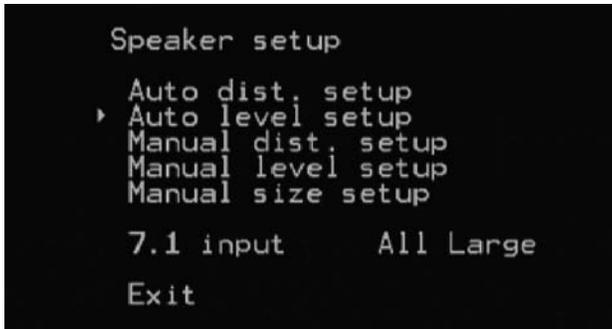


Note: Auto calibrated distances may appear different from measured ones. This is no error, because time for sound to reach the listener varies depending on the room and its atmospheric pressure.

Note: It is typical that the delay calibration for the subwoofer shows higher values than you would expect (or what your tape measurement actually shows). Auto calibrate compensates not just for the physical distance between speakers, but also for the "acoustical delay". Typically, subwoofers have what is called "long group delay" at lower frequencies. This is automatically compensated for when performing Auto distance setup.

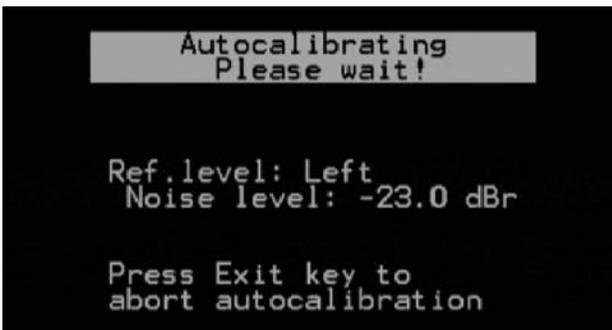
Auto level setup

1. After Distance auto calibration is finished it will go back to the Speaker setup submenu, move the cursor arrow to "Auto level setup" and press OK button.



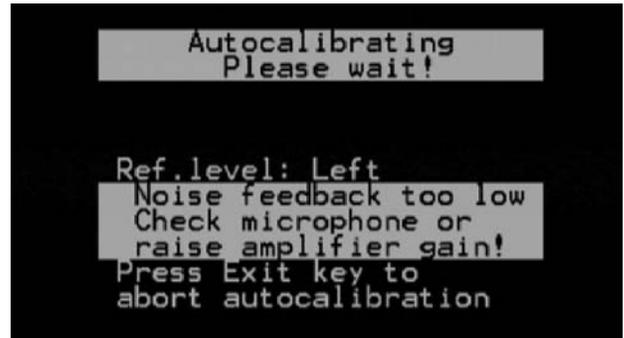
2. Auto level setup sends a test signal through all speakers, measures their level with the microphone, and increases volume to the right level. It starts from the left speaker and continues clockwise to the other speakers.

3. When Auto level setup is done, turn the microphone off and remove the battery from the microphone.



Note: Follow instructions on the OSD (highly recommended in Auto level setup!). If ambient noise from kids, cars, air conditioning, people yippy-yapping, etc. is too loud, the calibration will restart. Keep quiet and try to eliminate external noises during setup, or reschedule for late night when all is calm and quiet for best results!

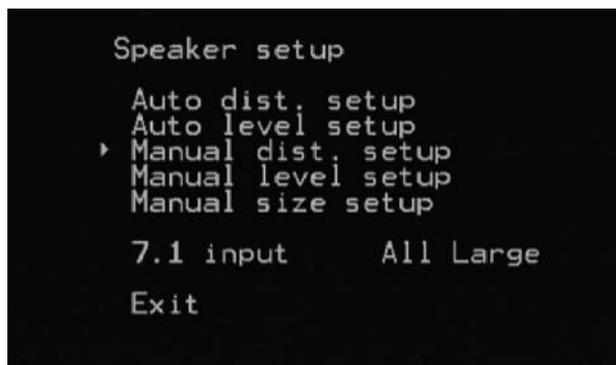
Note: Once again, if satisfactory sound levels are not reached in level calibration - if amplifier volume is too low, for example - you will be informed on the OSD and front panel display. Increase channel levels (see **Speaker setup / Manual level setup**, page 21)



Note: If the Auto level setup is aborted, calibration level changes will not be saved.

Manual distance setup

Note! If you use the Auto distance setup (highly recommended), you can skip the manual setup.



Sound coming from each speaker in the system takes a certain time to reach the listener. The farther away the speaker is, the longer the sound takes to reach your ear. The Manual distance setup uses time delay as needed to ensure sound from all the speakers reaches the listener at the exact same time.

To make things easy, settings are displayed in feet or meters and not in milliseconds (this option is set in the Misc setup). As before, if some speaker is "missing" from your system, it should say "None" on its line in the Display setup submenu.

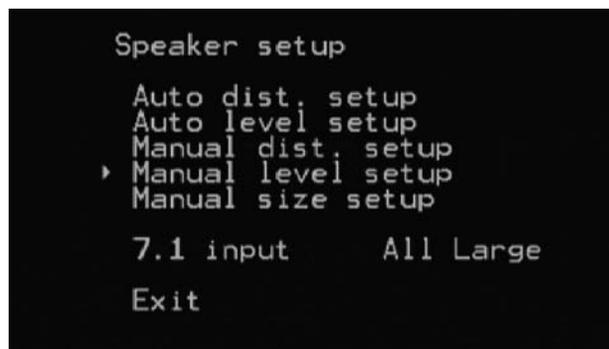


To set speaker distances manually, do the following:

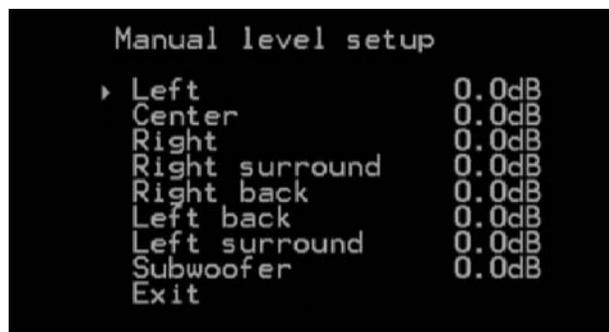
1. Sit in your listening position and estimate or measure the distance from your ears to each speaker.
2. Input the measured distances to each speaker using the Left and Right arrow buttons.
3. To change unit from feet to meters or meters to feet, go to the Display setup submenu (fourth item on the Main menu).
4. Save setting by going to "Exit".

Manual level setup

Note! If you use Auto level setup (highly recommended), you can skip this manual level setup.



The idea is to set all speakers in the system to the same perceived or measured output level or volume at the listening position. To achieve this, smaller or further away set speakers must have their level increased and vice versa. All the level settings indicated to the right of each channel may have different numbers, or not...that's ok. Again, speaker levels can be set manually or automatically with the Auto level setup function. To set manually, select the Manual level setup and follow along:



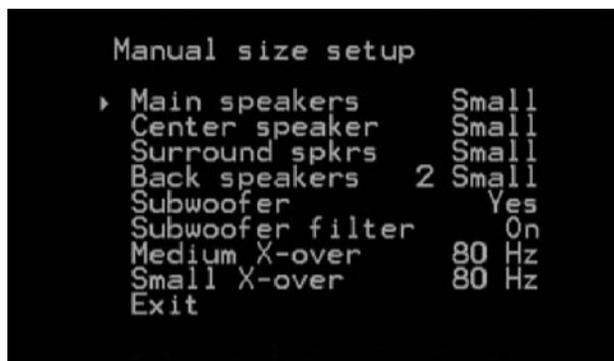
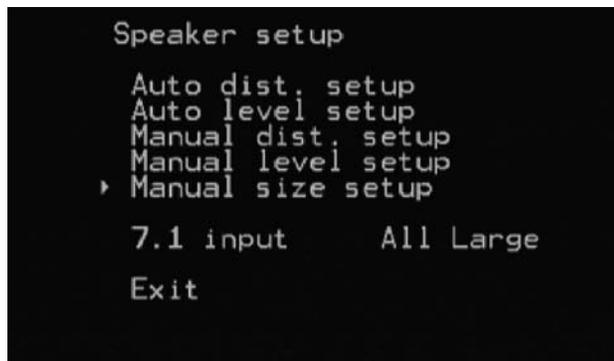
1. Check to ensure that all your system's speakers are shown on the OSD as set in the Size setup. If your system does not have a certain speaker, for example back speakers or a subwoofer, it should read "None" after the speaker's name.

2. Press the OK button on the remote control. You should now hear a short test signal circling around your speaker setup (the active noise channel is indicated with a # on the OSD). If not, make sure all speakers, and amplifier(s) powering them, are turned on. The "Test" is turned off by pressing the OK button again.

3. Listen or measure with a SPL meter to ensure that all speakers have equal volume from the listening position. When adjusting the level of a channel, the noise sequencer stops on that channel. You can start the sequencer again by pushing the OK button on the remote. If not, use the remote's Left and Right arrow buttons to go to the corresponding speaker's line and adjust its level up or down and test levels again. Repeat until you are satisfied that each speaker's level is the same volume.

Manual size setup

Always start your speaker setup from the "Manual size setup" sub menu because every other setting depends on this information. The on screen display shows the available speaker channels on the left side of the picture and their respective size settings on the right of each.



If you select **Large** from this menu the Controller will pass a full range signal (all audio frequencies present on recordings) to only the speakers connected to that channel.

If you select **Medium**, all frequencies below the Medium crossover (Medium X-over) frequency will be sent to your subwoofer.

If you select **Small**, all frequencies below the Small crossover (Small X-over) frequency (just below in the same submenu) will be sent to the subwoofer. This will eliminate unwanted distortion in small speakers that do not have the ability to properly playback lower frequencies.

If you are not sure whether your speakers are "large", "medium" or "small", consult an expert or try each of the settings and listen which setting produces the best sound.

Main speakers are the left and right front speakers of your system. You can set them Small, Medium or Large.

The Center speaker can be set to Small, Medium or Large or No. Setting it to "No" means that sound normally sent to the center channel will be sent equally to the left and right front speakers. The front two speakers will create a "phantom" effect of the center speaker, assuming correct speaker and listener positions.

Surround speakers are located on the back or sides of a 5.1 system or at the sides of a 7.1 channel system (see surround setup diagrams). Don't confuse these with "back" speakers. Surround speakers can be set to Small, Medium, Large or No. If you have no surround speakers, you cannot have back speakers either. Surround first, back second or none at all.

Back speakers are either a single speaker in the middle back of the room (mirroring the front three) used in so called 6.1 channel systems or two equally spaced "back" speakers in 7.1 systems. Dolby EX, DTS ES and of course any 7.1 analog sources use the additional "back" speakers. Back speakers can be set to none at all, 1 Small or 1 Large (6.1 systems), 2 Small, 2 Medium and 2 Large (for 7.1 systems). Back speaker signals are usually "derived" from surround speaker signals. If you don't have any back speakers, the Controller will direct any signal meant for the back speakers to the surround speakers.

The Subwoofer is the speaker playing the lowest frequencies in your system plus the low bass from any speaker channel you may have set as "Small" and the LFE signal (again, also called the subwoofer or .1 channel). It can be set to Yes (you have one in your setup) or No. If you select No, the Controller will direct the LFE signal and bass from any other channel set to medium or small to the front speaker channels if are set to Large.

```
Manual size setup
Main speakers      Small
Center speaker    Small
Surround spkrs    Small
Back speakers     2 Small
▶ Subwoofer        Yes
Subwoofer filter  On
Medium X-over     80 Hz
Small X-over      80 Hz
Exit
```

The Subwoofer filter can be set On or Off. This is a low-pass filter (passes the lows - cuts the highs). Many subwoofers have a built-in low pass filter, but it is best to use the digital low-pass filter in the Controller; do not use both at the same time. If you cannot turn the subwoofer's built-in filter off, turn it to as high a frequency setting as possible.

Medium X-over allows you to select the frequency at which you want to set the high and low pass filters (called crossover point) for any speakers you set to medium in the size setting. The filter value can be selected between 20 Hz and 200 Hz in 5 Hz steps. Ideal setting depends on your medium speaker's low frequency cut-off, room acoustics and/or personal preference. A little experimenting with this setting will greatly improve your overall frequency balance.

Small X-over allows you to select the frequency at which you want to set the high and low pass filters for any speakers you set to Small in the size setting. The filter value can be selected between 20 Hz and 200 Hz in 5 Hz steps. Ideal setting depends on your small speaker's low frequency cutoff, room acoustics and/or personal preference. A little experimenting with this setting will greatly improve your overall frequency balance.

Setup Example: Let's assume that you have the following setup:

- very large or capable left and right main speakers which can produce full bass (down to 30 Hz)
- a center speaker which can produce some bass but not as low as left and right (bass response to about 60Hz)
- surround and back speakers that are small (bass response to about 100Hz)

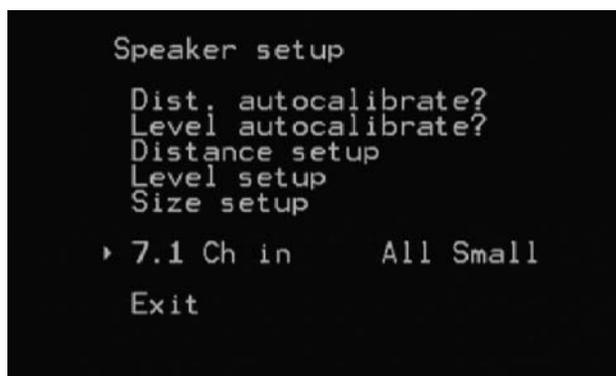
In this example, the following settings should be used:

- Main = Large
- Center = Medium (the medium x-over should be set to 60)
- Surround = Small (small x-over to 100Hz)
- Back = small (small x-over to 100Hz)

We hate to harp but if you have NHT speakers this process would be completely unnecessary and the settings would be made automatically in the speaker Wizard!

Note: Save your settings by going to "Exit" and press the "ok" button on the remote. Press Esc on the re-mote or front panel to go back without saving your settings.

7.1 Channel in

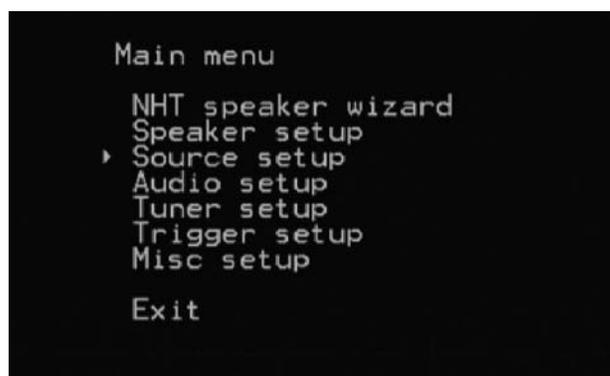


An analog direct signal with up to 7.1 channels can be connected to the "7.1 Channel in" connectors on Controller's back panel. This is usually a DVD Audio or Multi-channel SACD player or even a high quality stereo source like a high-end phono pre-amplifier.

The 7.1 Ch in allows you to configure the 7.1 channel analog inputs to best match your speaker setup for proper bass management. Your choices are All Small, L & R Large or All Large.

The bass management for the 7.1 channel analog inputs is done in the "analog" domain without any unnecessary A-D (analog to digital) or D-A (digital to analog) conversions to preserve the audio quality even with SACD sources. The crossover frequency is fixed at 80Hz.

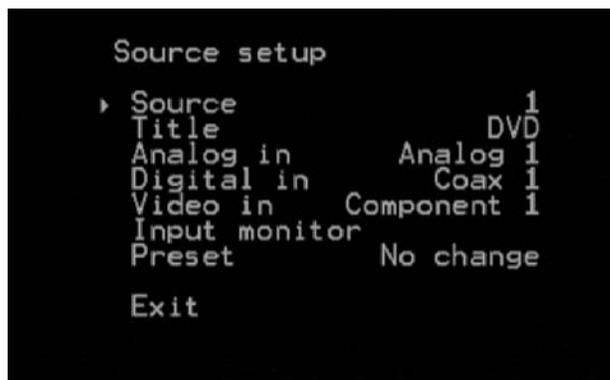
Source setup



The "Source setup" consists of 10 preprogrammed memory settings that assign a meaningful title like "DVD" or "Game" to specific audio and video inputs along with any sound profile Preset. This process is also called mapping and allows simplified everyday operation of your Controller.

The Controller has 10 programmable Sources. Sources are not bound to specific audio video inputs - they can be freely mixed. For example, if you have a DVD/CD-player combo, you can connect it to one optical or HDMI input, but have two Sources ("DVD" and "CD" for example) deriving from that one input route, again to make operation more intuitive.

In the Source setup menu, the first item, Source, selects the Source to be edited. Use Left and Right arrows to select.



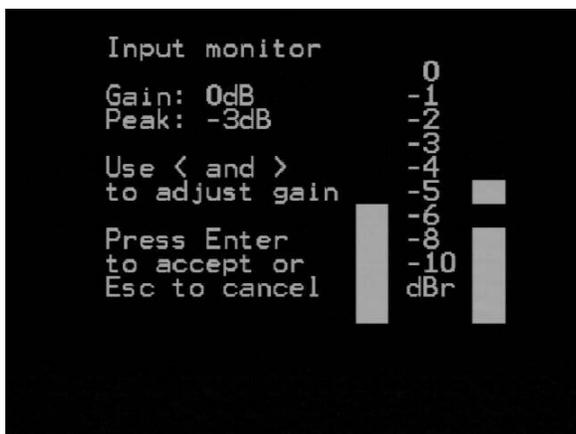
Title of the Source can be changed to best describe the content of the Source. Names can have up to seven characters.

To rename a Source, go to the Title line and press OK in the remote or scroll with the touch wheel on the front panel. A different view appears in which a small arrow (or underlining in the display) indicates the character to be changed. On the remote control, use Up and Down arrows to select a letter, number or punctuation mark. Use Left and Right arrows to move to the next character. When renaming is completed, move the small arrow to far right or far left and the OSD or display view is restored.

Digital input selects one of the digital sound input sources (HDMI, optical 1-3 or coaxial 1-3) to be used with the Source.

Video In: selects the video input to be used with the Source. Selections are Composite 1-6, S Video 1-4, component 1-3, HDMI 1-3 and "Off".

Input monitor is used to adjust the gain of an analog sound source and prevent the controller's analog preamp stage from clipping. Use the Input monitor after selecting an analog sound source to be adjusted. When setting, select an analog sound input playing something with a loud signal, like an AC/DC recording, to adjust.



When adjusting the Input monitor, you should see left and right channel level meters jumping up and down with the sound volume. Set the input gain with Up and Down arrows (remote) or by using the front panel touch wheel's up and down arrows. If volume is very low and indicators stay very low, increase the gain setting. If you hear distortion or "clipping" in the sound and indicators are raised very high, decrease the gain setting.

To save settings in the Analog monitor, press OK in the remote (or Menu button in the front panel). To exit without saving changes, press Esc in the remote (or any button on the front panel).

Analog input: selects one of the analog input sources (analog 1-6, Tuner or 7.1). If input is digital and not analog, the Analog monitor does not adjust input gain. In the "Gain" line there is a text "Digital input".

Preset selects one of the five preprogrammed settings or No change. They override global sound settings. Note: A flat trim (i.e. no boost or cut or lipsync at all) or No change (whatever was set is not altered including temp trims). For more on Presets, see "Audio setup".

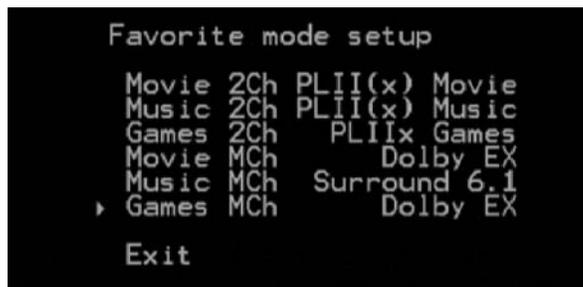
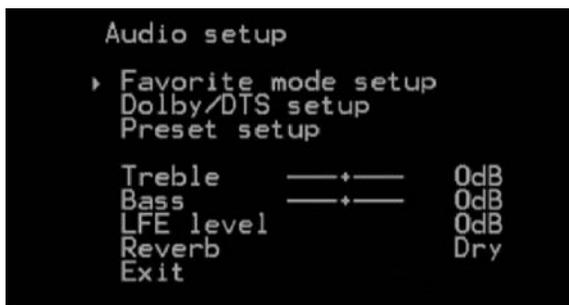
Audio setup

These settings control the audio of all sources and modes if no overriding settings are made from other menus.



The Audio setup menu lets you select Favorite mode setup, Dolby/DTS setup, Preset setup as well as "general" tone controls for treble, bass, LFE level, and Reverb.

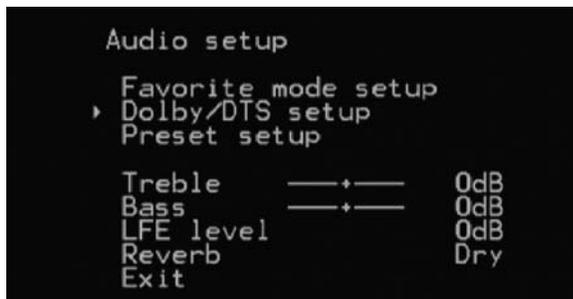
Favorite mode setup



Favorite modes are shortcuts accesses from the remote control's 4 mode buttons: Direct, Movie, Music, Games. You can assign different post processing modes (audio processing features like Dolby Pro Logic IIx, and "non-processed" modes like Stereo and Mono) for Movie, Music and Games. This can be done independently for 2 channel sources and multi-channel sources. The Favorite mode setup is done once and then you can use just "movie, music and games" buttons. If you want to watch movies just press "Movie" etc. No need to remember difficult post processing names like "Pro Logic IIx" or "Neo:6"! The same shortcuts are also available on the Controller's front panel by pressing the first mode button. Unit automatically knows if it is a 2ch (2 channel) or MCh (multichannel) signal and will apply the correct post-processing mode. This makes every day operation much

easier to use than typical A/V receivers. The 6 choices can be assigned to any or all of the 6 Source memories or recalled by pressing the Mode key on the remote or front panel. To assign modes, simply select one of the favorite mode presets on the left and use arrow keys on the touch wheel or remote to change preset to the desired mode.

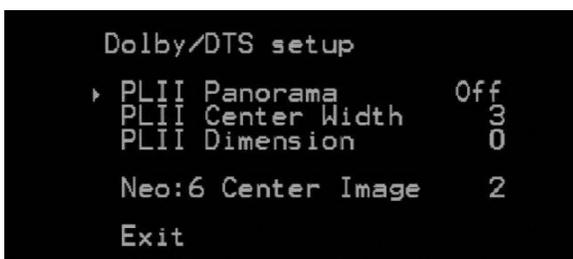
Dolby/DTS setup



These parameters are used with two-channel sources like cd players or MP3 players that are listened to using Dolby Pro Logic II Music or DTS Neo:6 modes. Both of these modes turn any two-channel source, using the Controller's digital or analog inputs, into "matrixed" multi-channel outputs, in which a multi-speaker, surround effect is created from the (two speaker) stereo source.

PLII Panorama sends some of the main channel sound to the surround speakers to create a wraparound effect. Panorama can be switched on or off.

PLII Center Width blends the center channel output to the left and right speakers. It creates a more spacious effect. Value can be set in eight positions (Min, 1-6 and Max). At Max all center speaker sound is sent to left and right channels. If you want more center channel separation, use low values; if you want smooth blend between the three front channels, use higher values.



PLII Dimension effect controls the front/rear balance of the multi-channel audio. It can be set to values from -3 to 3. Zero value does not change the signal at all. Positive values send more sound to the front speakers and decrease spatial effect. Negative values send more sound to surround speakers and increase spatial effect.

Neo:6 Center Image works like PLII Panorama: it sends some front channel sound to surround speakers. The effect can be set to six different positions (Min, 1-4 and Max).

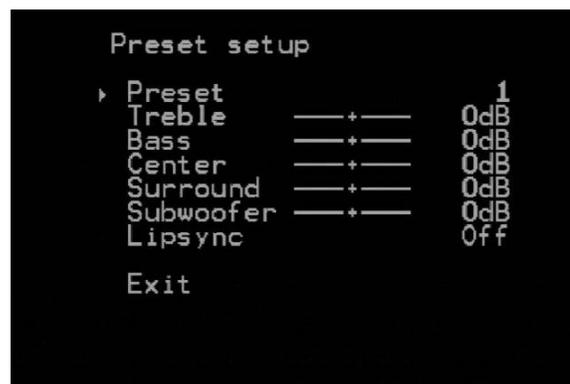
Preset setup



The Controller has five sound profile presets, which can be assigned to individual sources in the Source setup. Each profile preset can have its unique combination of Treble, Bass, Center level, Surround level and Subwoofer levels, plus a setting for Lipsync (delays the audio output and allows you to adjust for better audio and video sync) which is usually used with digital cable, satellite receiver boxes and outboard video processors or scalars.

When applied or assigned to a particular source, the sound settings made using the **Audio setup / Preset setup** override the sound settings made in the general Audio setup. A preset can be used to compensate the different qualities and properties of different sound sources, for example analog VCRs or even old phonographic records.

Preset in the top line selects the preset (1-5) to be edited. Treble, Bass, Center, Surround and Subwoofer levels can be set from -12 dB (cut) to +12 dB (boost). Lipsync can be set from Off to 150 ms (milliseconds) with 1 ms intervals.



Treble and Bass: These levers control the boost of Treble (high sound frequencies) and Bass (low sound frequencies). Bass and Treble boosts can be set from -12 dB to +12 dB.

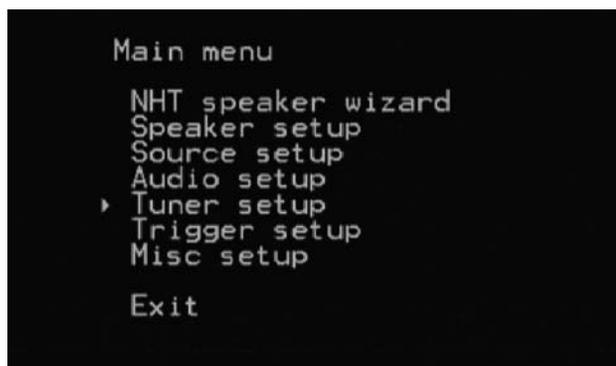
LFE level: LFE or Low Frequency Effects are the lowest noises, thumps and ka-booms, encoded to the digital surround signal. They are the ".1" in 5.1. LFE level control sets their level between -10 dB and 0 dB.

NOTE: The LFE level is not the same thing as subwoofer level. LFE is usually sent to the subwoofer, but if you don't have one, the LFE is sent to the main speakers.

Reverb: Adds reverb, making your room potentially sound like a different environment. Possible choices are Dry 1, 2, 3 and wet. This affects the amount of reverberation or room size of the "Concert and "Club" music modes.

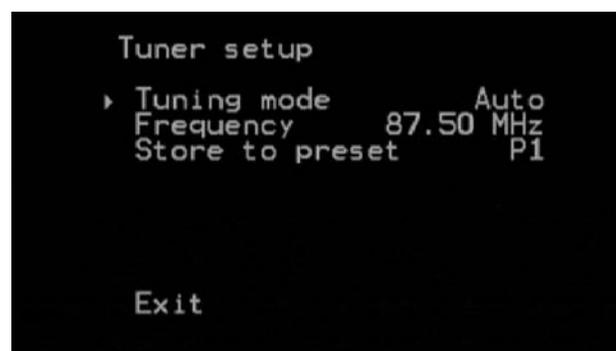
Note: When applied or assigned to a particular source, the sound settings made using the Preset setup over-ride the "general" sound settings made in the Audio setup menu.

Tuner setup



This menu allows you to setup the tuner presets, tuning mode, TV system type and unit of measure for the speaker setup menus.

There is a built in radio tuner in the Controller, which can be used to listen to amplitude modulated (AM) or frequency modulated (FM) broadcasts.



Tuning Mode: Options are Auto(matic), Preset or Manual.

Frequency: Displays the frequency selected for the tuner preset.

Store to preset: Selects the tuner's 20 presets, P1 - P20. Press 'OK' on the remote to store.

Using the Am / FM tuner

The Controller's radio tuner can be used to listen to AM (amplitude modulated) or FM (frequency modulated) broadcasts. To listen, do the following:

1. Connect an antenna to the back panel of Controller. Use right kind of antennas for both AM and/or FM broadcasts.
2. The Tuner is now selected by selecting the Source where the tuner has been assigned. There is no Tuner specific key on the remote.
3. Use band to select between AM and FM.
4. Use Tune + and - buttons to seek the wanted radio channel.
5. Tuning can be set to automatic (auto seek) or manual from the Tuner setup menu.

NOTE: automatic only works for FM.

Trigger setup

```
Main menu
NHT speaker wizard
Speaker setup
Source setup
Audio setup
Tuner setup
▶ Trigger setup
Misc setup

Exit
```

```
Trigger setup
▶ Trigger 1 sense PowerOn
  -polarity      Posit.
  -delay        No
  -duration     Infin.
Trigger 2 sense ZoneOn
  -polarity      Posit.
  -delay        No
  -duration     Infin.
Exit
```

The Controller has two programmable (and 1 fixed) DC trigger output jacks on the rear panel that are used to control external devices. The triggers will send a DC signal through the trigger output jacks and can be used to turn power on and off from an amplifier, video display, or motorized screen, for example.

Trigger sense sets the event that launches triggering. There are several options, including power on/off of the Controller, different kinds of inputs to the Controller and activated Zone B.

Trigger polarity sets the mutual position of plus and minus on the signal. See what works correctly on receiving unit, or refer to the user's manual of the device to be triggered. Delay sets the time between trigger activating event and triggering signal. Duration sets how long a triggering signal is sent from Controller. Infinite means that triggering signal stops only when the trigger activating event stops. Other options are times; signal will be sent at the chosen time in the beginning and end of the trigger-activating event.

The third trigger is not programmable. It is active (on) whenever the unit is NOT in the standby mode. Its polarity is positive and there is no turn on delay. The third trigger is optimal for power amplifiers used with Controller.

Note: If you are using the Controller with any NHT amplifiers with the NHTBus connected, you will not need to connect the trigger cables to them as the trigger feature is built into the system.

Misc Setup

```
Main menu
NHT speaker wizard
Speaker setup
Source setup
Audio setup
Tuner setup
Trigger setup
▶ Misc setup

Exit
```

```
Misc setup
▶ TV system          PAL
Distance units      Feet
Proximity mode      On
Display             Always On
Setup lock          Off

Reset all settings

Exit
```

TV System

This lets you change output format of the on screen display to PAL or NTSC.

Warning: If you change this to a format your TV doesn't accept, the OSD will no longer work and you will only be able to make changes via the front panel display.

Distance units

This lets you change the measured distance from feet to meters.

Proximity mode

This lets you turn this feature on and off (see **Proximity Feature** page 10). You may press any front panel button or remote to get to the start screen.

Display

The front panel display has two settings, "always on" and "auto off". When set to "auto off" the display will go dark after 10 seconds and can be turned back on by pressing any remote control button or waving hand near the front panel (when proximity mode is set to "on" - page 10).

Setup lock

This allows you to lock out the Controller's setup mode so no accidental setup changes can be made. To regain access to the setup mode, press and hold the mute button for five seconds when Setup lock dialog is shown on the screen.

Reset all settings

If you should change your setup drastically because you moved or added a number of new components to your system or are unsure that you have set anything in the menus right, you can start over. The Reset all settings restores all the Controller's setup parameters to the original factory default settings. This includes all speaker settings, level and distant settings, trigger settings, TV type, etc. In short, everything (except TV System settings, and source names)

The menu is simple to navigate. You will be asked on the OSD if you are sure you want to reset the Controller. Pressing the OK on the remote completes the process. You will then be presented with a confirmation on the OSD assuring you the task has been completed.

Care and Maintenance

You may need to dust or clean the Controller every once in a while to maintain its beautiful finish.



WARNING: Make sure the power cable is unplugged before cleaning.

Never use solvents, they will damage the surface. Only use very soft cloth and very mild soapy water (1/2 ounce of dish soap per gallon of water) on the top, sides and front. Never clean the rear panel this way, this may damage the connectors. Simply dust the rear panel. Let the Controller dry for an hour before returning it to operation.

Troubleshooting

<p>No power</p>	<p><i>Power cord is disconnected.</i></p> <ul style="list-style-type: none"> ■ Connect power cord <p><i>Rear-panel AC switch is turned off.</i></p> <ul style="list-style-type: none"> ■ Turn switch to ON -position <p><i>AC outlet is dead.</i></p> <ul style="list-style-type: none"> ■ Check that power is present in outlet by connecting another device to it <p><i>The fuse has blown.</i></p> <ul style="list-style-type: none"> ■ Take the unit to authorized dealer for servicing
<p>Power on, but no sound</p>	<p><i>Volume set too low.</i></p> <ul style="list-style-type: none"> ■ Turn up volume <p><i>Mute is on.</i></p> <ul style="list-style-type: none"> ■ Turn mute off <p><i>Headphones are plugged in.</i></p> <ul style="list-style-type: none"> ■ Unplug headphones <p><i>Wrong input or input type selected.</i></p> <ul style="list-style-type: none"> ■ Select correct input or input type <p><i>Input source inactive.</i></p> <ul style="list-style-type: none"> ■ Turn on the source and play back some material <p><i>Amplifiers turned off.</i></p> <ul style="list-style-type: none"> ■ Turn on the power amplifiers <p><i>Speaker cables disconnected.</i></p> <ul style="list-style-type: none"> ■ Check cabling between amplifiers and speakers
<p>One channel dead</p>	<p><i>Faulty connections.</i></p> <ul style="list-style-type: none"> ■ Check all interconnecting from the source through to the amplifier. ■ Check speaker cable connection. ■ Check speaker by moving to an operating channel
<p>Buzz or Hum</p>	<p><i>Interconnecting cable is defective.</i></p> <ul style="list-style-type: none"> ■ Replace cable <p><i>Interconnecting cable is partially out of socket.</i></p> <ul style="list-style-type: none"> ■ Make sure that cables are properly inserted <p><i>Ground loop.</i></p> <ul style="list-style-type: none"> ■ Disconnect each source at a time and locate the unit causing the ground loop. ■ Put an application specific transformer on the incoming cable of any component (cable box or satellite receiver) connected to the controller.

Limited Warranty
Valid Only in the U.S.A. and Canada

Warranty Period

For a period of 3 years for parts and 3 years for labor from the date this product is first purchased from an authorized NHT dealer, Now Hear This (NHT) warrants that if it fails to function properly due to a manufacturing defect, despite its being installed and operated according to these instructions and used under normal conditions, it will be either replaced or repaired with new or rebuilt parts (both at NHT's option) with a unit of comparable value without charge to you.

What's Not Covered

Altered, defaced or removed serial numbers void this warranty.

This warranty does not cover any product used in trade, business, industrial or commercial applications.

This warranty also does not cover the cabinet or appearance factors, or costs, defects or damage resulting from misuse, abuse, accident, improper maintenance, alterations or modifications not authorized in writing by NHT, or parts or labor from any source other than an authorized NHT service location.

Damage due to power exposure in excess of the speaker's published power ratings; ie, overpowering, lightning or power surges, are also not covered.

Your Rights

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

NHT limits this warranty to the purchase price of the product, excludes incidental or consequential damages, and limits its obligations under any implied warranties under state laws to a period not exceeding their warranty periods. As some states do not allow the above limitations, however, they may not apply to you.

To Obtain Service

To find the name and address of the nearest authorized NHT service location, call or write:

Customer Service Department, NHT, 6400 Goodyear Rd., Benicia, CA 94510, 1-800-NHT-9993 (648-9993), www.nhthifi.com

For your future convenience, please keep this warranty with your sales receipt, and record date and place of purchase for further reference.