Home Theater
SYSTEM

# CONCERT AVR-4

## Home Theater Surround Sound Receiver
## **User Functionality Manual**

*For those who consider perfection possible®*

AudioControl®

22410 70th Avenue West • Seattle, WA 98043 USA
Phone 425-775-8461 • Fax 425-778-3166
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## Greetings from the rainforest

On behalf of everyone at AudioControl we wanted to congratulate you on your selection of the Concert AVR-4 Home Theater Surround Sound Receiver. Whether this is your first venture into home theater or you are long time seasoned audio veteran, you will truly enjoy the performance of this product.

While there are many components involved in creating a truly awesome home theater from room design, speaker placement, and ultimately system calibration, selecting the proper products is always very critical. For that reason AudioControl created the Concert AVR-4 to provide maximum enjoyment and flexibility which all contribute to a truly awesome home theater experience.

AudioControl's passion for high quality, meticulous attention to detail and professional sound heritage shows itself in the dozens of awards we have won for our designs, products and service. This manual is designed to help you get the most from your Concert AVR-4 home theater receiver. Even though you're dying to plug it in and start pushing buttons, please take a little time to glance over this users guide and learn about the Concert AVR-4. Any component that does as much as the Concert AVR-4, deserves all the explanation it can get. Given the complicated nature of the Concert AVR-4, we also recommend you visit our website for updates to this manual. Continued technology changes/improvements will require more information. (www.audiocontrol.com - click "Home Theater")

Enjoy the experience.

*Your Friends At AudioControl*

## Key Features Of the Concert AVR-4

While the AudioControl Concert AVR-4 is equipped with a large number of features and functions that were designed to maximize your theater experience, we wanted to draw your attention to a few that deserve extra attention. These will be the features you will want to mention to your friends, family and co-workers to impress them when they ask you about the home theater components you have auditioned.

### 3D Support

Your Concert AVR-4 is now equipped with the much requested Video Bypass function. This allows you the option for HDMI video to bypass the video scaler in your Concert AVR-4. This is done so that unaltered 3D signals are delivered directly to your display device.

### Video Bypass

Out of the box, the Concert AVR-4 is configured with the video bypass on. This enables high definition and 3D HDMI video signals to pass through directly to the display device, leaving the Concert AVR-4 to make good sound better. With Video Bypass on, analog video inputs, such as component or composite, will still be passed through the scaler for upconversion and output via HDMI. Please keep in mind that when the Concert AVR-4 is in Video Bypass mode, on screen volume overlays, audio mode changes, base/treble adjustments etc…will not be displayed. Pressing "Menu" however will engage the video scaler and yield a menu screen to your display so that you can make adjustments if necessary.

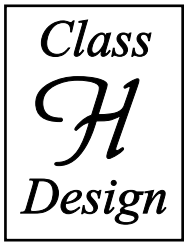
### HDMI Inputs and Outputs

The Concert AVR-4 is equipped with 120 individual audio and video inputs and outputs, including a large number of HDMI (High-Definition Multimedia Interface) inputs and outputs. The new generation HDMI inputs will allow the Concert AVR-4 to interface with Blu-Ray players, satellite and cable decoding boxes plus traditional DVD players that also have HDMI connectors. HDMI is an uncompressed all digital interface standard used on many home theater products equipment. This format can be used for sending audio, video, and control signals over short distances. For longer runs, you can use the AudioControl BVHD-20 which can extend HDMI signals up to 150 feet via simple CAT-5/6 cabling.


The dual HDMI outputs are assignable to allow for priority switching via the display

device. Component, composite and S-Video signals can also be automatically upconverted, scaled to their maximum potential resolutions and output through the HDMI ports.

### Powerful and Cool Running Class H Amplification




The Concert AVR-4 utilizes AudioControl's legendary Class H amplifier topology to powerfully drive even the most demanding speaker systems. Known for pristine sonics, cool operating temperatures, and ultra reliability, this highly efficient amplifier design literally "sips" current, which helps it to satisfy even the "greenest" of customers. Despite it's minimal current draw, the Class H design is powerful enough to drive 120 watts per channel (840 watts total), with all channels being driven into 8 ohms. The Concert AVR-4 also has the additional ability of driving into lower impedance's when necessary.

### Dolby™ Volume


A constant annoyance for home theater users has been the significant differences in volume levels as you switch between channels or sources on your televisions and in your home entertainment systems. Variances in volume levels in DVD and Blu-ray Disc™, digital music files, compact discs, and broadcast entertainment programming each compound the problem, forcing you to reach for the remote controls to adjust. Dolby Volume lets you select a preferred listening level and enjoy all of your entertainment sources at the same volume level. For complete information on Dolby Volume, go to *www.dolby.com/consumer/technology/dolby-volume-audiocontrol.html*

### Multiple Surround Sound Formats

The Concert AVR-4 supports the latest surround codecs of Dolby True HD and DTS-HD Master along with traditional formats of Dolby Digital 5.0 and DTS High Resolution. A powerful 32 bit DSP processor enables the Concert AVR-4 to decode all current discrete surround digital formats available for 5.1, 6.1 and 7.1. In addition your Concert AVR-4 has the capabilities to process two channel signals using Dolby Pro Logic II, Pro Logic IIx and DTS Neo to provide multi-channel output.

### Multi-Zone Operations For 2nd and 3rd Zones

Since we know your audio and experiences may extend beyond one room, the Concert AVR-4 is equipped with outputs for secondary and tertiary zones. This means you could be enjoying your home theater in one room and another member of the family could be listening to their favorite CD in another room while your "crazy uncle" could have independent volume in a third room. The Second Zone is also equipped with a video output so you can expand your video options even more.

### Inputs For Networked Audio and USB Sources

The Concert AVR-4 is designed to operate with most of today's traditional source units, like CD and DVD players. Additionally it can receive audio signals over a computer network via an Ethernet input and or from a USB source. You will want to contact a professional audio integrator for more information on properly using these functions.

### Extensive Automation Integration

An automation system is what really pulls most high-end home theaters together. It puts the full power of the system at your fingertips. While the Concert AVR-4 will operate with a number of IR remote controls (sold separately), it is equipped with a dedicated RS-232 control (labeled "Control") and an extensive command library to control all aspects of the Concert AVR-4. Using this port requires a fair amount of programming and automation skills which are typically best done by professional custom installations companies. Check out the AudioControl dealer locator on our web site for more info: www.audiocontrol.com

### We Want to Hear From You

Before you get too entrenched in the features of your Concert AVR-4, we encourage you to take a moment and visit the AudioControl web site at www.audiocontrolregistration.com and register your new Concert AVR-4. It allows us to keep a record of your purchase of the Concert AVR-4. Needless to say when you are in the pleasure business like we are, we love to hear from our customers so feel free to include some comments. You will also want to keep you own record of the serial number and put your sales receipt or invoice in a safe place. This is very important in the unlikely event that the Concert AVR-4 needs to be serviced or for proof of ownership if somebody takes a fancy to your theater system in the middle of the night. Insurance companies have no imagination when it comes to components like the Concert AVR-4 being part of the theater system. This concludes the "gentle reminder" section of this manual.

### Award-Winning Quality

The Concert AVR-4, like all AudioControl Perfection Theater components, is backed with a comprehensive five-year parts and labor warranty. This comes from a company that has been designing and manufacturing performance audio components in the USA since 1977.


## Front Panel Features

❶ **STANDBY -** The switch serves to "wake up" your Concert AVR-4, provided the main power switch, located on the rear panel, is turned "On".

❷ **MENU -** Pressing this button will allows access to the Set-Up Menu functions of the Concert AVR-4.

❸ **INPUT (Up and Down arrows) -** These buttons allow the user to select an audio and video source for playback or scroll through the OSD (On-Screen Display).

❹ **INFO -** User can select the information that appears on the display of the Concert AVR-4 and also is used in navigating the OSD (On-Screen Display).

❺ **MODE -** User can select between Stereo and surround modes that are available for the source unit and also is used in navigating through the OSD (On-Screen Display).

❻ **SELECT -** Used in conjunction with the Set-up Menu function, this button allows you to enter selections you have made.

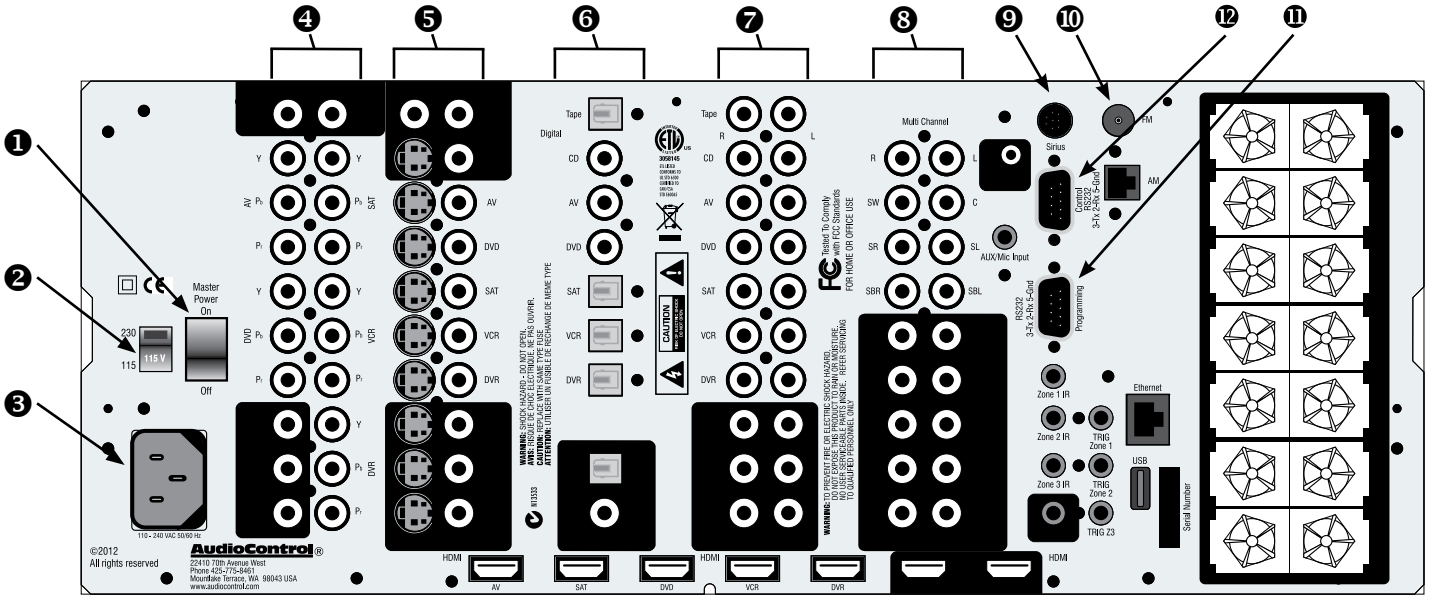
❼ **MUTE -** Need to answer the phone, but still keep an eye on the TV? Just press the Mute button to turn off the sound. Press it again and the audio gracefully ramps back up to where you were so rudely interrupted.

❽ **ZONE -** Allows user to select between the Main Zone, Zone 2, and Zone 3

❾ **DISPLAY -** This cool blue display allows you to see the basic functions of your Concert AVR-4. ***It is important that you have an external display device connected to one of the rear video connectors for complete viewing of all menus during set-up.***

❿ **DIRECT -** When using two-channel *analog* inputs, this button defeats all digital signal processing and directs the two-channel analog input from the selected source to the front outputs. Use this button when you want to do some serious quality two-channel listening.

⓫ **MASTER VOLUME CONTROL KNOB -** This nice polished knob lets you adjust the volume in selected zones (Main, Zone 2, and Zone 3).




## Rear Panel Features

❶ **MAIN POWER SWITCH -** The only time to turn OFF the Concert AVR-4 with this button is when the system will not be used for some time. Normally this button is left On and the Concert AVR-4 is "woken up" via the "Standby" switch on the front panel, via an optional remote control or through an automation system. When this switch is turned off, you cannot turn the Concert AVR-4 On or Off via any other method.

❷ **VOLTAGE SELECTION -** The Concert AVR-4 is designed to operate with either 110-120V volt or 220-240V line voltages. You will want to set this switch to match up with your local power voltages.

❸ **POWER CONNECTION -** All good AC power flows in here.

❹ **ZONE 3 AUDIO OUTPUTS -** These audio only outputs can feed an external amplifier while sharing the same source as Zone 2 but allow for independent volume control of the outputs.

❺ **ZONE 2 AUDIO/VIDEO OUTPUTS -** These second zone outputs enable listening and viewing a source independently of the main theater system.

❻ **DIGITAL AUDIO CONNECTIONS -** The Concert AVR-4 features assignable coaxial and optical digital audio inputs and outputs. While we have labeled them with the names of typical source units, these connections as assignable via the internal menu's

❼ **ANALOG AUDIO INPUTS AND OUTPUTS -** Connect the appropriate two channel stereo outputs and inputs from your source units here.

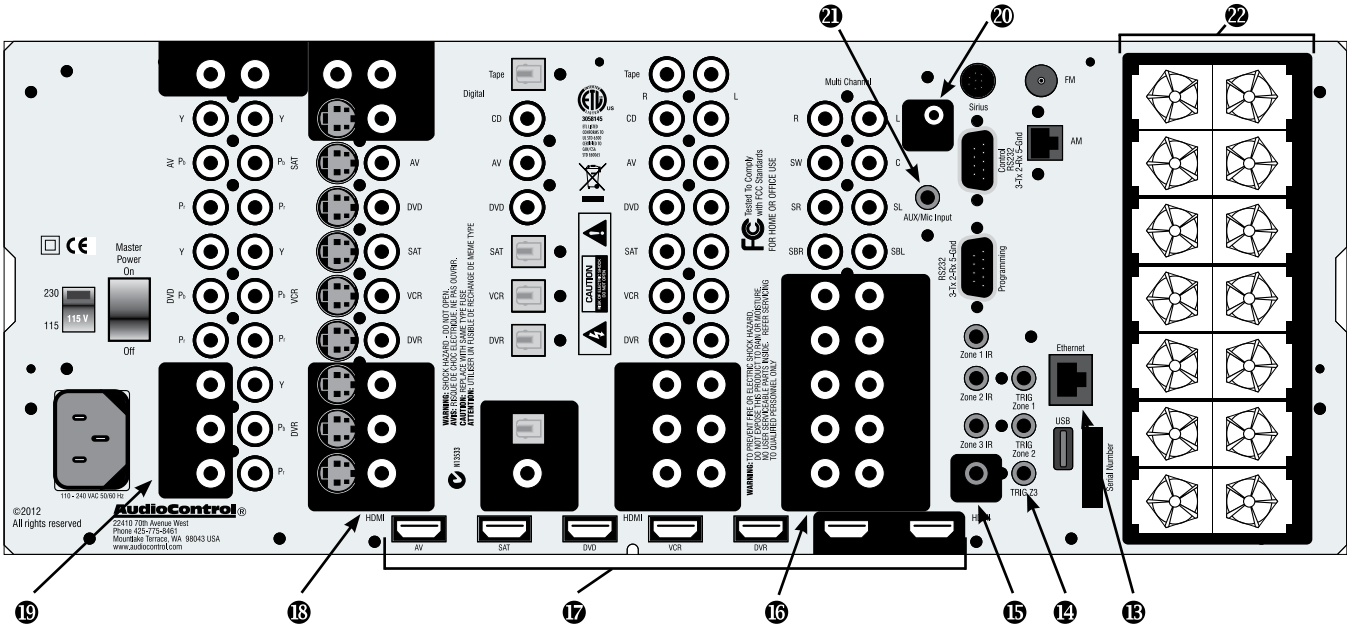
❽ **MULTI-CHANNEL DVD-A/SACD INPUTS -** Newer multi-channel Blu-Ray and DVD players can give you superb music audio quality in full surround. These players feature a surround decoder built into them and output analog multichannels. The Multi-channel inputs on the Concert AVR-4 bypass all digital circuitry and connect the player to the amplifiers with only a volume control in the path.

❾ **SIRIUS RADIO INPUT -** The Concert AVR-4 is designed for use with the "SiriusConnect™ Home Tuner" package (sold separately) which should be connected to this input via the cable supplied in that package.

❿ **ANTENNA CONNECTIONS -** These inputs should be connected to the AM and FM antennas that are supplied with your Concert AVR-4. For optimum reception you may want to consider a roof mounted external antenna.

⓫ **RS-232 PROGRAMMING PORT -** It is also used when updating the internal Concert AVR-4 firmware programming. Contact AudioControl for more information.

⓬ **CONTROL PORT -** Use this connection to control the Maestro M4 with an automation system.




**⓭ NETWORKED AND USB AUDIO INPUTS -** Your Concert AVR-4 has the ability to accept audio files via an Ethernet connection or from a USB mass storage device. This usage requires some expertise in the area of computer networks so please refer to page 33 or your AudioControl dealer for the proper applications.

**⓮ 12 VOLT TRIGGER OUTPUTS -** These three outputs provide a +12 volt signal to control the power amplifiers, source units, video projector, screens and curtains in the theater. The Main Trigger output is active whenever the Concert AVR-4 is turned on; the Video Trigger 2 is active whenever a video source is selected.

**⓯ IR (INFRARED) INPUTS AND OUTPUTS -** These jacks enable use of external IR sensors and emitters for installations where it is not desirable (or practical) to use the front panel IR.

**⓰ MAIN AUDIO OUTPUTS -** These RCA outputs can feed external power amplifier(s), should you choose to not use the amplifier built-in to your Concert AVR-4. (Our customers tell us that our AudioControl Savoy 7-channel amplifier works great in these situations). Additionally the Concert AVR-4 has three subwoofer outputs that can feed signals to active powered subwoofers.

**⓱ HDMI INPUTS & OUTPUTS -** These inputs allow the Concert AVR-4 to accept digital audio and video signals from source units equipped with HDMI (High Definition Multimedia Interface) outputs. Make sure your HDMI cables are properly inserted into these connectors and that there no sharp "pulls" on the cable that may prevent your connectors from making a complete connection.

**⓲ COMPOSITE AND S-VIDEO INPUTS & OUTPUTS -** These are for the video inputs and outputs from your source units. If you are planning on using the second zone video outputs, you should ALWAYS connect a Composite video input from each source.

**⓳ COMPONENT VIDEO OUTPUT -** When not using the HDMI outputs connect these high quality video outputs to your main video display device (i.e. Projector, CRT, LCD, etc.) You will be pleased to know that the Concert AVR-4 will convert Component, Composite and S-video signals to HDMI.

**⓴ HEADPHONE CONNECTOR -** This jack accepts an 1/8" input for using headphones with impedance ratings of 32 to 600 ohms. This jack is always active and will not turn off the audio in the main zones when a connector is inserted which allows it to be used for remote installations. The main zones can be muted via RS-232 serial commands if necessary.

**㉑ AUX INPUT -** This Aux input is used in conjunction with the auto-setup microphone. Additionally it can also accept either analog or optical digital signals.

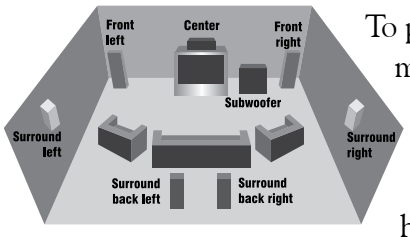
**㉒ SPEAKER CONNECTIONS -** These 5 way binding posts allow you to connect the main speakers for your two, five, or seven channel systems. Make sure that the red (positive/+) wires are connected to the red (positive/+) connector on the back if your Concert AVR-4. Likewise the black (negative/-) wires should be connected to the black (negative/-) connectors on the back of the Concert AVR-4 to maintain proper speaker polarity.

## Set-up and Configuration

### Unit Placement

The Concert AVR-4 can be placed almost anywhere in your audio equipment stack. It is good practice to ensure that the equipment location is properly ventilated and to make certain not to block the ventilation slots on any other component. Avoid placing the Concert AVR-4 directly over large power amplifiers or any other component that generates a lot of heat. Unless they are made by AudioControl, some amplifiers can get pretty hot and have big power transformers that can induce hum into other audio components like Concert AVR-4.

### Front LCR (Left, Center, Right) Speakers




To present the most realistic sound stage, all three of the front speakers must be tonally balanced. Ideally, these speakers should be identical models. This ensures that the sound doesn't change as it pans across the screen. Place the speakers at the seated ear level. Whenever possible, the three front speakers should also be placed at the same horizontal level for best imaging.

### Side Surround Speakers

The surround speakers provide the reverberant, or ambient, sound effects in a multi-channel theater audio system. These speakers should be placed on the sidewalls approximately 36" above the seated ear height of the listeners. If you are using surround speakers, which have a dipole sound pattern, they should be mounted in-line with the main seating position. If the surrounds are direct radiator, they should be just behind the main listening seat.

### Rear (Back) Surround Speakers

Some software provides extra channels that are used in 7.1 mode systems to provide extra depth in the sound field. Place these speakers approximately 36" above the seated ear height of the listeners. Additionally, they should be mounted close together on the rear wall of the theater facing the screen.

### Subwoofer(s)

The subwoofer is a large speaker that provides the bottom end "kick" in the system. Depending on the size of your listening space, you may require more than one subwoofer to get the bass volume levels that you desire. Make certain you remember to include the size of all spaces that are open to the theater in determining harmony subwoofers you need.

### Connection Tips

Even if you're an electronics veteran, this part may seem repetitive, but some things can never be repeated too many times.

• Turn off all components before making any connections.

• When making connections, make sure that "left goes to left" and "right goes to right." The obvious and time-honored way to assure this is to assign RED plugs to Right and WHITE/GREY/BLACK plugs to the left. Yellow is usually used for video cables or digital audio connections.

• Wherever possible, keep power cords away from signal cables (i.e., inputs from disk players, VCRs, etc.) to prevent induced hum. Bundle all power cords down one side of your equipment cabinet and all the signal cables down the other.

• Use high quality interconnect cables. We're not going to get into the debate about whether $100 per meter interconnects improve the sound and picture quality of your system. We do know from experience however that really, REALLY cheap connections can cause problems.

• Don't stand in a bucket of water when working with electricity.

### Power Wiring

Like many of today's intelligent home electronics, the Concert AVR-4 should be plugged into an unswitched AC outlet so that it always has power. This allows the RS-232 and remote control features to work even when the Concert AVR-4 is in standby. We always recommend the use a high quality surge protection device to keep all of your electronics safe from the evils of spikes on power systems.

### Audio Connections

INSTALL TIP ☛

Most of the sources will have two audio connections to the Concert AVR-4; an analog 2-channel connection plus a digital audio connection. Whenever possible, ***connect both*** types of audio signals to the Concert AVR-4. This will provide the digital audio signal necessary for high-quality digital surround sound along with the analog audio for tape recording plus it provides the necessary analog signals for the second and third zone audio outputs.

Don't worry if your satellite receiver has a coaxial digital output and the Concert AVR-4 SAT input is optical. Refer to the advanced configuration section on page **28** of this manual for more information regarding assigning a digital input to the optical or coaxial connection.

### Multi-Channel Analog Audio

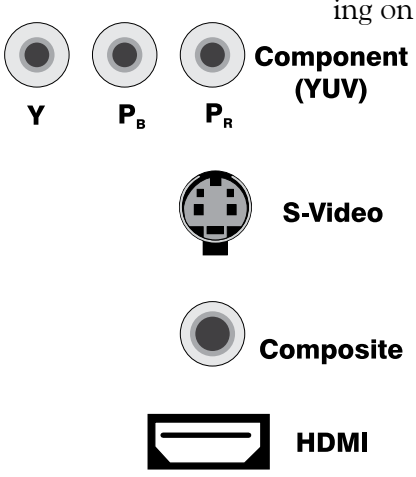
Audiophile surround recording formats such as SACD and DVD-A decode the multi-channel signals directly within the Blu-Ray or DVD player. The Concert AVR-4 features an eight channel direct-analog input for these sources. These inputs bypass the digital circuitry in the Concert AVR-4 and are routed directly to the Main Amplifier outputs via an independent volume control circuit. This ensures the highest possible audio quality for this input.

## Video Connections

### Choosing your video

There are four video signal connection formats ranging from Good to Best; Composite, S-Video, Component Video and HDMI digital video. Depending on the particular source unit you are using, you may have the option of more than one of these video connections. Whenever possible *connect as many as possible* as the processor in your Concert AVR-4 will identify the best format and route that to your main HDMI, component or composite video outputs. Because of the higher bandwidths involved with video signals, the quality of the interconnect cables you choose is important especially with HDMI. Video connections should always be made with cables specifically designed for video. Don't be tempted to grab some extra audio RCA cables lying around. Without the proper 75 ohm cabling, your picture quality will suffer from smear, ghosting or noise. It is always a good idea to make certain that the video and audio signal cables are routed away from any power wiring.

*Types of video connections*




### Video Transcoding

To simplify your installations, the Concert AVR-4 provides video transcoding which routes the S-video, Composite signals, and Component video signals to the HDMI outputs of your Concert AVR-4 regardless of video bypass selection. As we mentioned before it is best to connect all analogue and digital audio/video signals form your source units to your Concert AVR-4 to allow proper use of the Main, Secondary, and third zones.

INSTALL TIP ☛

### HDMI Signals


Your Concert AVR-4 is equipped with five discrete HDMI inputs and dual assignable HDMI outputs. All the HDMI outputs are assignable to various display devices, the signals on both will be the same as HDMI can only have one processed video path.

**Output 1 -** Connect this to the display device located in your main zone or theater.

**Output 2 -** Connect this to the display device located in your secondary zone.


Additionally, standard HDMI signals are only meant to be sent 20 to 30 feet before signal degradation or even dropout occurs. Therefore we recommend you utilize a HDMI signal extension system like the AudioControl BVHD-20, especially when using high bandwidth signals like 1080p from Blu-Ray players or cable boxes.

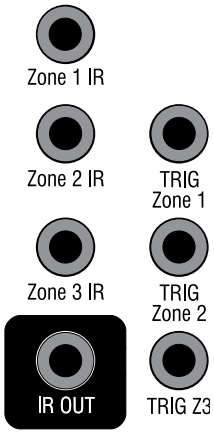
## IR (Infra-red) Remote Control Connections

We have equipped the Concert AVR-4 with a number Infrared (IR) inputs plus an output to allow for maximum control flexibility with standard IR remote controls (sold separately). This allows you to place the infrared receiver where it can "see" the signal from the remote control when the equipment may be hidden. The IR connections are designed for "modulated" signals and wired for stereo or mono 3.5mm jacks with "Tip" being the modulated signal and "Sleeve" being ground. The signals are compatible with third-party receivers such as a Xantech No. 291-10.

**Zone 1 IR -** This is ideal for when the front panel of the Concert AVR-4 is hidden away in some dark closet or equipment rack. To prevent the possibility of receiving multiple commands, when you connect an IR receiver to this input, it will disable the front panel IR receiver.

**Zone 2 IR -** Allows for control of source and volume functions of Zone 2

**Zone 3 IR -** Allows for control of source and volume functions of Zone 3. You will want to note that Zone 3 will always share audio sources with Zone 2.




**IR Output -** This output is an electrical combination of Zone 1, Zone 2, and Zone 3 IR input signals and can be used as an IR repeater.

### 12V Trigger Connections

There are three stereo mini-jack 12 volt trigger outputs on the rear panel of the Concert AVR-4 which are used to remotely control such things as the power amplifier turn-on, projector power, screen automation. The jacks are designed for 3.5mm mono connectors with "Tip" being the trigger output and "Sleeve" being ground. Each jack is capable of outputting a 12V 70 mA switching signal.

## Setup Menus

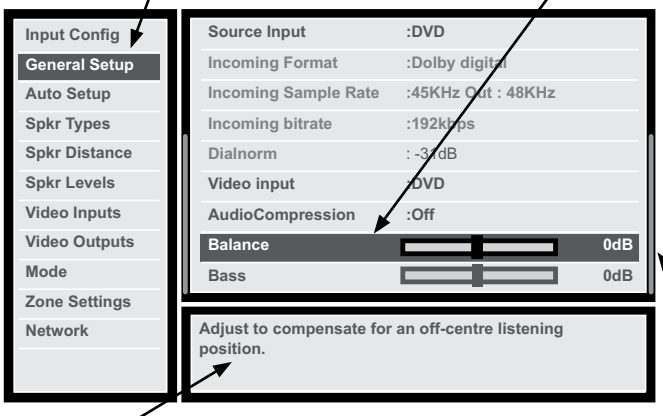
This section of the manual discusses how to navigate the set-up menus of your Concert AVR-4 home theater receiver. As you have probably determined by now, if you have the read the rest of this manual, the Concert AVR-4 is an incredibly flexible and sophisticated processor that you can literally "personalize" for use with your performance theater system. While the set-up menus incorporate a number of default settings that we determined will work well with many theater systems, you will want to take the time to go through each of these set-up screens and make the appropriate adjustments to the settings. Once you have made the changes, you will not have to change these again unless you make equipment or usage settings to your system.

To get started and view these set-up menus it is very important that you have one of the video outputs (Component, HDMI, composite, or S-Video) of your Concert AVR-4 connected to your video display device (i.e. projector, flat panel, TV). This is absolutely necessary to see the set-up menus.

INSTALL TIP ☛ ***In the event you need to reset the output resolution and frame rate to the factory settings, it is simply a matter of pressing and holding the "SELECT" button for three seconds.***

**Menu Panel -** The left-hand panel lists the setup screens available for adjustment. The selected menu is highlighted with a dark green band.

**Adjustment Panel -** The upper right-hand panel lists the parameters you can change as a user. The selected line is highlighted with a dark green band. Lines that cannot be selected are greyed-out.




**Help Screen -** The lower right-hand panel gives a short help text for the feature being adjusted.

**Scroll Bars -** These indicate the position of the displayed screen within longer menus.

### Initial Display Configurations

Your Concert AVR-4 has a default digital video output resolution of 720/60 and 525-line 60Hz NTSC for analogue video as these are the most common display resolutions. Needless to say you can change these in the set-up menus if necessary. If your display device uses a different resolution, it should synchronize automatically. However should you encounter an unstable OSD (on screen display) you may need to make a resolution change.

*If at any point you need to reset the video output resolution and frame rate to the default setting, push and hold the "Select" button for 3 seconds.*

### Configurations For 1080p/24 Applications

The Concert AVR-4 supports both 1080p/24 fps (frames per second) and the more commonly used 1080p/60 fps video formats. To properly utilize the 1080p/24 format you will want to make sure that the source device (i.e. Blu-ray player) and the display device (i.e. projector or TV) are both capable of supporting this format. In the Video Output section of the Setup menus, set the Output Resolution of your Concert AVR-4 to 1080p (not Preferred) and make sure that the Frame Rate is set to follow input. Failure to do any of the above could result in no image.

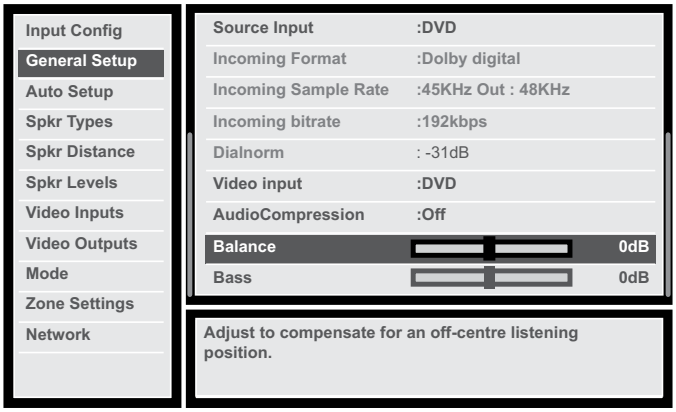
### Navigating

Navigating the Set-Up Menus is a very simple process that can be done using the appropriate front panel controls on your Concert AVR-4 or by using an IR remote control (sold separately) that incorporates the appropriate IR codes.

1. Press the Menu button once to enter the Setup Menus. The word **"Menu"** will appear on the display of your Concert AVR-4 and the actual menu will appear on your display device.
2. Use the Input selection button "Input ∧" and "Input ∨" to navigate among the menu's and use the "< Info" and "Mode >" buttons to select appropriate menu screen.
3. Press the "SELECT" button to select the menu options.
4. Press the Menu button anytime to exit the Menu screens and any setting changes will be saved automatically.

### Input Configuration

Each input on your Concert AVR-4 has individual audio and video settings that can be adjusted specifically for its use.




**INPUT -** Identifies the currently selected source which settings are being displayed.

**NAME -** Specific name/label for this input that will show on display device and OSD. Very useful when you have more than one source unit that may do similar functions (i.e. 2 two Satellite receivers could be named SAT1 and SAT2 accordingly)

**LIP SYNC -** Many video processors and line multipliers cause a slight delay between the sound and the video picture. Highly compressed video signals such as MPEG encoded satellite receivers and some DVD's also suffer from this problem. The Lip Sync setting delays the audio a small amount to allow the video image to catch up.

**MODE -** Sets the initial audio decode mode for *stereo* sources on this input

**EXT. MODE -** Sets the initial audio decode mode for multi-channel digital sources on this input.

**TREBLE and BASS -** Changes the bass and treble response for all speakers when using this input. Very useful when you have a source unit that has reduced frequency response due to the format (i.e. older VCR's)

**ROOM EQ -** The Auto Speaker Set-Up in the Concert AVR-4 utilizes a special algorithm that calculates many the major frequency resonance's that occur due to room acoustics and speaker locations and creates specific equalization filters to offset this. This menu allows you to select whether to engage the Room Equalization filter for each source. Options are "Not Calculated", "ON" or "OFF" with the default being "Off".

**INPUT TRIM -** Selects the maximum analog signal for this input before clipping. This setting should match the audio output of your source units with the available settings being 0.5, 1, 2, and 4 volts RMS and the default being 2 Volt. Source units with low output levels can benefit from being set to higher output settings such as .5 or 1V.

**DOLBY VOLUME -** Selects whether Dolby is engaged for this input with the options being "Off", "Cinema" or "Music" and the default being "Off". Dolby Volume corrects for volume inconsistencies and improves audio frequency response at lower levels. This feature is not available when using the Multi-channel audio or "Direct" modes. *For more information go to www.dolby.com/consumer/technology/dolby-volume-works.html*

**DOLBY LEVELLER -** The setting options are "0" (minimum) and "10" (maximum) with the default being "9". This Dolby Volume feature allows matching of quiet and loud sources of source unit inputs irregardless of recording levels of content being played by a particular source unit.

**DV CALIB OFFSET -** Dolby Volume provides a Calibration Offset parameter that compensates for speaker efficiencies and listening positions. If you set the Speaker Levels on the Concert AVR-4 properly using an SPL meter (like the AudioControl SA-3052) then you can leave this setting at 0.

**SURROUND EX -** When playing Dolby Digital EX encoded material, the Concert AVR-4 gives you the option of selecting the Surround settings, provided you have Surround Back loudspeakers connected. Setting options are "Auto DD EX", "Auto PLIIx" and "Manual".

**Auto DD EX -** The Concert AVR-4 will automatically switch to Dolby Digital EX mode when a Dolby Digital EX bit stream is detected.

**Auto PLIIx Movie -** The Concert AVR-4 will automatically switch to Pro Logic lIix Movie mode decoding when a Dolby Digital EX bit stream.

**Manual -** If a Dolby Digital Ex bit stream is detected, the Concert AVR-4 will treat it as a normal Dolby Digital signal. The EX or Pro Logic lIix decode modes may be implemented by pressing the "MODE" button.

**STEREO MODE -** If you are using an external subwoofer, and are listening to stereo (two channel) sources, either digital or analog system, you can select to configure how the subwoofer receives it's bass information. The "Stereo Mode" functions are bypassed when using an analog source and you have selected the "Stereo Direct" mode.

***As Speaker Types -*** Your normal speaker configuration (as selected in the "Spkr Types" menu) determines your subwoofer output.

***Left/Right -*** Full frequency audio will be sent to your front left and right speakers with no information going to the subwoofer.

***Left/Right+Sub -*** Full frequency audio will be sent to your front left and right speakers plus bass information is directed to your subwoofer effectively duplicating the lower frequencies

***Sat+Sub -*** Full frequency audio signals are sent to your front left and right speakers with the bass information being directed to only your subwoofer. Your front speakers will only reproduce the upper frequencies.

**SUB STEREO -** If you have selected the "Left/Right+Sub" or "Sat+Sub" setting in the "Stereo Mode" menu, then this setting adjusts the level of the subwoofer when you are using a two-channel source.

**BRIGHTNESS -** This video setting adjusts the brightness for this input, providing you are using a video equipped source unit.

**CONTRAST -** This video setting adjusts the contrast for this input.

**COLOR -** This video setting adjusts the color saturation for this input.

**PICTURE MODE -** The setting options are Video, Film, or Auto with the default being Auto. The video processor in the Concert AVR-4 normally automatically detects the original source type and properly sets the Video mode or Film mode processing. Occasionally some source material is unable to be interpreted properly by the processor, which may require a manual adjustment.

**EDGE ENHANCEMENT -** This video feature sharpens the picture.

**MOSQUITO N.R. -** This video feature removes haziness that sometimes appears around objects in a picture.

**NOISE REDUCTION -** This video feature removes random video noise that may appear on the picture from a source unit.

**BLOCK N.R. -** This video feature removes block artifacts in overly compressed digital video signals

**COMPONENT MODE -** This mode allows you to configure the component video input of your source unit to properly match up with your display device. Setting options are "Normal", "RGsB" and "RG+Sync".

**Normal:** Configures output for standard Component (YPbPr) analog video.

**RGsB:** Configures for RGB analogue video with video "sync on green"

**RGB+Sync:** Configures for RBG analogue video with sync on the composite input for the selected source.

INSTALL TIP ☛

**VIDEO SOURCE -** Selects whether the video signal for this source is detected automatically or locked to a particular signal type. Setting options are "Auto", "HDMI", "Component", "S-Video" or "Composite" with "Auto" being the default. ***Note that the "Auto" setting will increase the switching time, as it reviews all format options, therefore, it is recommended you select the specific source format (i.e. HDMI) whenever possible.***

**AUDIO SOURCE -** Allows you to select how the Concert AVR-4 receives audio signals for this source. Settings options are "Remote", "HDMI", "Digital", or "Analogue".

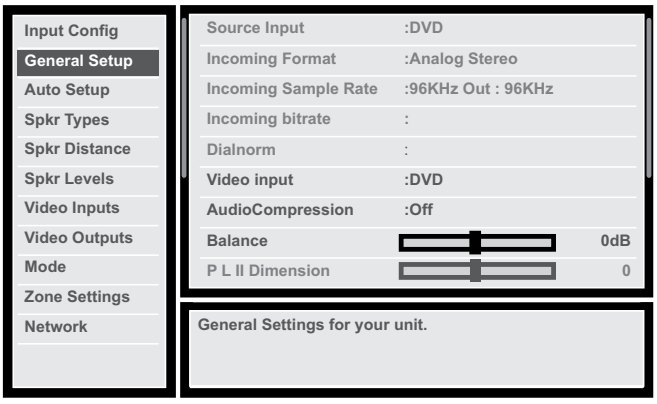
## General Setup

These menu screens display general information and system control ***(Information Only)***

**Source Input:** Displays the currently active audio source input.

**Incoming Format:** Displays format of digital audio stream

**Incoming Sample Rate:** Displays incoming sample rate of digital audio stream, if present.




**Incoming Bit Rate:** Displays bit rate of digital audio stream, if present.

**Dialnorm:** When a Dolby Digital audio stream is connected to this input this is the Dialogue Normalization setting requested.

**Video Input:** The audio and video inputs on the Concert AVR-4 generally follow the source selected. This setting allows you to temporarily override and change the video settings so you can utilize a different video source. Setting resets itself when source is change.

**Audio Compression:** Compressing the dynamic bandwidth of the audio can be a good thing, especially for those late night action movie festivals. Compression increases the volume of quiet sections and and reduces the volume of the louder sounds. These 3 options for this setting only apply to some Dolby Digital or DTS soundtracks. As part of the general set up, this setting applies to all inputs with digital audio streams that support this function and is recalled each time the unit is powered up.

**Off:** Audio compression is not applied (default)
**On:** Whenever a soundtrack is received that supports this function the Audio Compression is applied
**On/Auto:** Same as On (above), with the exception of Dolby TrueHD soundtracks which supports an additional Auto on/off setting

**Balance:** Adjusts the left/right balance of the front outputs.

### Dolby Prologic II Music Mode Settings

These setting apply to all two-channel inputs when PLII or PLIIx Music mode is selected.

**Dimension -** Adjusts the depth of the front/rear sound stage. For normal listening this should be set to +3. Setting options are –3 to +3 with default setting being "0".

**Center Width -** Determines how strongly the Pro Logic II decoder processing creates the center channel image. Normally this signal is fed only to the center channel speaker output, but if the center speaker is set to "None" in the speaker setup, a phantom center channel is created using the front left and right channels. Normally this setting is left at +3.

**Panorama -** When the Panorama Mode is enabled, the front center image is extended to include the rear surround speakers. This provides a more enveloping wrap-around effect.

**Digital Output Frequency -** Sets the sampling frequency of the audio Analogue-to-Digital converter. Settings options are 44.1/ 48 /96 kHz. Default is 96 kHz

**Volume Adjustment -** Allows you to set the step size for the volume control. Options are "Normal" (1 dB steps) or "Fine (.5 dB steps).

INSTALL TIP ☛ **Maximum Volume -** Limits the highest volume that the Concert AVR-4 will play. This is useful if you have speakers or amplifiers with limited power handling abilities.

**Max On Volume -** This is the highest volume that the Concert AVR-4 will play when it is first switched on first turned. This prevents the Concert AVR-4 from being turned on at shock volume levels from the last time you were watching a good movie.

### Auto Setup

Your Concert AVR-4 is equipped with an Auto Setup feature that assists in setting all of the essential speaker settings for your system, including which speakers are present, types of speakers, crossover settings for the subwoofer, sound level and distance compensation. It will also calculate basic room equalization filters to offset frequency resonances caused by acoustics and speaker placement. While there is no substitution for proper acoustical treatments, speaker placement and theater calibration, the Auto Setup Mode is useful for maximizing the acoustical performance of many theaters.

### Microphone Positioning

The calibration microphone that comes with Concert AVR-4 is a designed to be placed in the center of your theater in the main listening position preferably at the same height as your head. Connect the microphone jack to the "Aux" input on the rear of your Concert AVR-4.

INSTALL TIP ☛ Make sure you minimize any background sounds in the theater by turning off any fans or noisy air conditioning systems, and close all doors and windows as outside sounds will negatively affect your measurement. Additionally if the microphone is positioned too close to the speakers this will result in a signal Clipping error.

**Run Auto Setup -** In this menu, press the "Select" button on the front panel and the Concert AVR-4 will begin generating test tones out of each channel, a process that takes about two minutes. During this process the AVR-4 identifies which speakers are being utilized in the system and what the recommend system adjustments are, based on the measurements.

**Accept Setup -** Once the Auto Setup has completed it's testing, you can select to accept the settings or reject them. Options are "No" or "Yes".

**Auto Setup Progress -** Displays a status summary of the Auto Setup function and identifies any measurement errors during the testing process. Options are "Calculating EQ" or "Completed Error".

After running the test, this screen will display any system errors for each speaker

**Not Present -** Speaker was not detected – check connections if necessary and move mic and rerun test.

**Clipped -** If you have highly efficient speakers or the microphone is measuring over reflective sounds, this could result in a distorted or "Clipped" measurments. Try repositioning the microphone and running the test again.

**Mic Too Close -** This is generally a result of the microphone being too close to the speakers. Try repositioning the microphone and running the Auto Setup test again.

**Crossover Frequency -** Based on the speaker measurements your Concert AVR-4 processes, it will recommend a crossover frequency between your subwoofers and your main speakers.

## Speaker Types

This series of menus allows you to select the types of speakers that you will be connecting to your Concert AVR-4. Please note that if you set all speakers to small then you must indicate in the menus below that a subwoofer is present in the system. If not your speakers will be selected to Large. For the purposes of setting the Concert AVR-4.

**"Large"** speaker is one that is capable of reproducing a full range (20-20KHZ) audio signal. Use this setting when ***not*** using a subwoofer.

**"Small"** speaker is one that is not designed to reproduce deep bass frequencies and is generally used *with* a subwoofer (i.e. typical Satellite speakers that typically can't play below 80 Hz).

**"None"** If you do not have a speaker connected to an output (i.e. No Subwoofer or Back Speakers) then set that speaker size to "None".

**"Subwoofer"** Selects whether a subwoofer is present in your system.

**Crossover Frequency -** This controls the frequency at which bass is redirected from speaker channels set to "Small" and sent to the Subwoofer outputs. This frequency is adjustable from 40 Hz to 150 Hz.

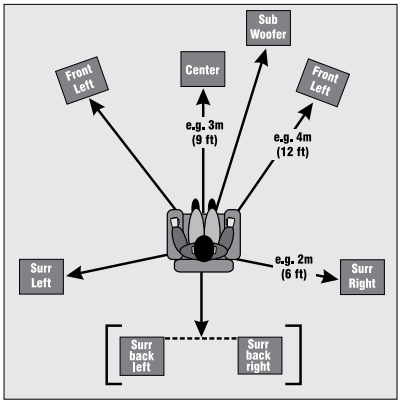
**MCH Sub Levels -** This adjusts the level of the subwoofer channels when using an externally decoded multi-channel source (DVD-A, SACD, HDMI, etc.) Most DVD players require a +10db compensation on the subwoofer channel to maintain the correct balance levels with the main channels. Setting options are "+10dB comp" or No comp"

**USING CHANNELS 6 + 7 FOR -** If your main speaker system consists of only 5 main speakers and no Surround Back Left & Right speakers, you can redirect signals from the unused amplifier channels to the front speakers or for Zone 2.

## Speaker Distance

The Speaker Distance settings help the sound from each speaker arrive at the listening seat at the same time. This provides a much more believable and immersive sound environment. Precise delay settings should be done by a trained professional with audio test equipment such as the AudioControl Iasys HT to measure the precise sound delay. You can get a rough delay setting using Auto Set-up. Measure the distance from the center of a speaker to the seated ear position of the main listening seat. Write each of these distances down and enter them into the Concert AVR-4 or use auto setup.

## Speaker Levels




It is critical to properly match the levels from each speaker to achieve a correct sound stage. The realism is totally lost if the footprints of a person walking across the screen change in volume as they move from left to center to right. We strongly recommend using a test analyzer such as our Iasys HT for this calibration. The levels are nearly impossible to judge by ear alone. Though not as accurate as using the Iasys HT, you can use a sound level meter for this adjustment.

With the internal test noise generator of the Concert AVR-4, adjust each speaker for a sound pressure level (SPL) of 75 dB using a "slow" response time on the SPL meter placed at the main listening position at ear height.

## Video Inputs

Settings to optionally assign a video source to each of the normal "audio only" inputs. The default for each of these settings is "None". This is a great way to listen to the ball game over the Internet Radio and watch it over your normal video display device, though timing might be a little off.

## Video Outputs

The Concert AVR-4 is not only a great sounding home theater processor but it is also a very powerful video processor. To that extent it has a number of video settings that need to be selected carefully to optimize your video performance.

**Zone 1 On Screen Display (OSD):** While the set-up menus will always show on your display device, you have the option of selecting whether your Main Zone general settings (volume, subwoofer level, etc.) show up on the bottom of the screen as an On Screen Display (OSD). The options are "On" or "Off".

**Analog Output:** Controls the output settings for the Composite and S-Video analogue video outputs. You will want to note that these outputs support display resolutions of 480i or 576i signals.

**Analog Frame Rate:** Controls the output frame rate for all Main Zone analog video outputs.

**Display Type:** Options are 4:3 standard or 16:9 widescreen.

**Output Switching:** The HDMI outputs of the Concert AVR-4 are completely assignable to match up with switching applications of the theater system.

**Auto-Priority Out 1/Out 2:** This input senses which display device is operating and gives priority to the selected HDMI output. If both HDMI outputs are being used, priority is given to the device selected in this menu.

**Output 1 or Output 2:** Enables only selected output to operate.

**Output 1 & 2:** This setting allows both HDMI outputs to operate simultaneously. In this mode the maximum resolution for both displays will be limited to the resolution of the lowest display device.

**Output 1 Resolution:** Selects the output resolution for HDMI Output #1 with the options being a list of the available display devices or "Preferred". ***In the Preferred mode, this output matches the highest preferred resolution of the display device. This setting is only effective if Output 1 is the only HDMI output being utilized.***

INSTALL TIP ☛
*Setting output resolution to match the native resolution of your display device speeds up switch time and will reduce the potential for EDID errors.*

**Output 1 Frame Rate:** Selects the output frame rate for HDMI Output #1 with the available options being displayed in the drop down menu's. Frame rates that are not supported by the display device cannot be selected.

**Lipsync 1 (Information Only):** When this feature is supported by the display device, this setting displays how much lip sync is applied to HDMI Output 1.

**Output 2 Resolution:** Selects the output resolution for HDMI Output #2 with the options being available display devices or "Preferred". ***In the Preferred mode, this output reflects the highest preferred resolution of the display device. This setting is only effective if Output 2 is the only active HDMI output.***

**Output 2 Frame Rate:** Selects the output frame rate for HDMI Output #2 with the available options being displayed in the drop down menu's. Frame rates that are not supported by the display device cannot be selected.

**Lipsync 2 (Information Only):** When this feature is supported by the display device, this setting displays how much lip sync is applied to HDMI Output 2.

**Output 1 & 2 Resolution:** Selects the output resolution when both HDMI Outputs are being used with the options being available display devices or Best. In the Preferred mode, this output reflects the highest preferred resolution of the display device.

**Output 1 & 2 Frame Rate:** This setting controls the frame rate output of HDMI Output 1 & 2 with this setting only being active if OUT 1 & 2 is the only selected HDMI output.

**Lipsync 1 & 2 (Information Only):** When this feature is supported by the display device, this setting displays how much lip sync is applied to HDMI Output 1 & 2.

## Surround Modes

This screen allows the user to select the specific decode and downmix options that will be available to the listener in Stereo and Multi-channel applications. The options for each format are "Yes" or "No" and are accessible by touching the "Mode" button on the front panel of your Maestro M3.

**Formats Available For Stereo Sources:** The following formats are available when using media that contains either digital or analog stereo signals (Dolby 2.0, digital PCM stereo, DTS 2.0 etc.)

**Dolby Pro Logic -** Original Dolby surround format that produces five-channels of output from two-channel stereo material. Best used when material is encoded in Dolby Pro Logic, otherwise it is recommended that you use Dolby Pro Logic II.

**Dolby Pro Logic II -** Advanced Dolby decoding process that produces five-channels of output when using two-channel stereo material. This format also offers three different modes; Movie, Music, Matrix, and Game which provide various enhancements depending upon the source materials.

**Dolby Pro Logic IIx -** This Dolby format produces seven-channels of output when using two-channel stereo material and allows you to take better advantage of systems that utilize a 7.1 speaker system. Like Dolby Pro Logic II, this format also offers three different modes; Movie, Music, and Game for additional enhancement.

*For more detailed information on the various Dolby and DTS surround formats you can visit www.dolby.com or www.dts.com.*

**DTS Neo: 6 -** This DTS based format outputs six channels of audio based when using two-channel stereo material. This format also offers two different modes, Cinema and Music which provide various enhancements depending upon the source materials.

## Zone Settings

This menu allows you select the audio and video control and volume settings for Zone 2 and Zone 3. You will want to note that the Zone 2 and Zone 3 always share the same audio source.

**Zone 2/3 Input -** Selects the analog audio to be used for Zone 2 and Zone 3.

**Zone 2 Video Output -** Selects the analog video to be used for Zone 2.

**Zone 2 Status -** Displays current status at Zone 2 with options being "Standby" or "On"

**Zone 2 Volume -** Displays current volume level in Zone 2.

**Zone 2 Maximum Volume -** Selects the maximum volume setting for Zone 2.

**Zone 2 Fixed Volume -** Allows the Zone 2 volume to be fixed at the current volume level.

**Zone 2 Max On Volume -** Selects the maximum volume level for Zone 2 when the Concert AVR-4 is powered on or comes out of stand-by mode.

**Zone 3 Status -** Displays current status at Zone 3 with options being "Standby" or "On"

**Zone 3 Volume -** Displays current volume level in Zone 3.

**Zone 3 Maximum Volume -** Selects the maximum volume setting for Zone 3.

**Zone 3 Fixed Volume -** Allows the Zone 3 volume to be fixed at the current volume level.

**Zone 3 Max On Volume -** Selects the maximum volume level for Zone 3 when the Concert AVR-4 is powered on or comes out of stand-by mode.

**Standby -** Selects what parts of the Concert AVR-4 turn-on and off when a Standby command is received via the Zone 2 IR port. Options are "Local Only" or "All Off".

## Network Settings

Your Concert AVR-4 has the ability of playing Internet radio stations as well as music stored on a network storage device like a PC or USB flash drive. Typically the computer network may use DHCP to automatically make the necessary networks settings although the Concert AVR-4 can also be configured manually when using a static IP address.

**USE DHCP** Use this setting if your network uses DHCP for assigning an IP address.

**MAC Address (Information Only) -** Displays the unique network card address of your Concert AVR-4.

**IP Address -** When not using DHCP, use this setting to assign a unique IP address to your Concert AVR-4.

**Subnet Mask -** When not using DHCP, use this setting to assign the subnet mask to your Concert AVR-4.

**Gateway -** When not using DHCP, use this setting to enter the IP address of the router connected to your Concert AVR-4.

**Primary DNS -** When not using DHCP, use this setting to enter the Primary DNS IP address of your Internet service provider.

**Alternate DNS -** When not using DHCP, use this setting to enter the Secondary DNS IP address of your Internet service provider.

**Use Proxy -** Use this setting to select if you are connecting to the Internet via a proxy server. Options are "Yes" or "No".

**Proxy Address -** When using a Proxy Server, use this setting to enter its IP address.

**Proxy Port -** When using a Proxy Server, use this setting to enter the port number to which the proxy responds.

## Playing Audio Files via Network Audio or USB

The network audio client on the Concert AVR-4 is capable of supporting the following file formats:

- MP3
- WMA (Windows Media Audio)
- WAV
- FLAC (Free Lossless Audio CODEC)
- MPEG-4 AAC (iTunes with DRM10 support)
- Ogg Vorbis

Network devices must also be running a universal plug and play (uPnP) service such as Windows Media Player. This feature is standard with Windows Vista or it can be downloaded free of charge from www.microsoft.com. While each device may operate differently, here are some basic commands to follow:

1) With the Concert AVR-4 in "Standby", make all of the Ethernet network and/or USB connections and then take the unit out of "Standby".

2) Using the front panel source selection controls, select Network Audio "NET" as a source. A "Home Page" page will appear on your display device and show all available storage devices.

3) Navigate through these using the arrow keys on the front panel of your Concert AVR-4 or using an optional infrared (IR) remote control. Folders displaying a musical note symbol (♪) have playable files in them.

4) Select the file/track you wish to play and press the OK or ">" key. Pressing the "Select" button will also serve to pause the track. Pressing and holding "Select" button for two seconds will stop playback.

## Internet Radio Stations

Once you have established an Internet connection for your Concert AVR-4, you can manually enter the URL of any Internet radio station. You can use the vTuner service to easily browse through Internet radio stations. You will want to go to *www.audiocontrolradio.com* to set up this service for use in your system.

Review the "Network" set-up menu of your Concert AVR-4 and locate the unique MAC (Media Access Controller) address of your unit, as it will be required to setup up your service. Once activated you can visit various stations and podcasts and then set up groups of favorite stations. These will show up as favorites on your display device when you next connect to the Internet.

## Concert AVR-4 Automation Integration

### Automation Integration

Part of the joy of a great home theater is that you don't have a tray of remote controls staring at you whenever you want to watch a movie. Hidden away behind the scenes is a workhorse that takes care of the mundane tasks of turning on all the components, lowering the curtains, dimming the lights, popping the corn, etc. This faithful servant can take the form of a simple learning remote control or a system as capable as a whole house automation system with touch screens. There are a wide variety of theater controllers available.

There are two means of remotely controlling the Concert AVR-4: With Infrared (IR) Remote control and with the top RS-232 Serial Port labeled Control. The Concert AVR-4 RS-232 command set also takes advantage of the extensive discrete IR command library with the IR simulation command. This adds a great deal of flexibility to system design, general functionality and personal customization. It is possible to use both hand held remotes and control panels in the same installation depending on your needs.

### RS-232 Serial Control

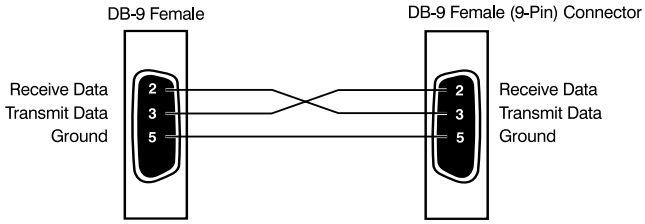
You must set the external RS-232 control system serial port of your control system to match the data communication speed and format of the Concert AVR-4. If these settings are incorrect, the Concert AVR-4 will not respond to the commands.

Concert AVR-4 communication parameters:

| | |
|---|---|
| Baud Rate: | 38,400 |
| Start Bit: | 1 |
| Data Bits: | 8 |
| Stop Bit: | 1 |
| Parity: | None |
| Flow Control: | None |

### Cable Wiring

The cable wiring to connect the Concert AVR-4 to your control system will depend on the RS-232 output connection on the controller. Make certain that you wire the Transmit Data output on the serial controller to the Receive Data on the Concert AVR-4 and vice versa on the Receive Data line on the controller system. Connect the signal grounds on the control system and the Concert AVR-4 together. The RS-232 connection on the Concert AVR-4 is a DB-9 Male connector, labeled Control and is wired as follows:




Pin 2 Receive Data (RXD)
Pin 3 Transmit Date (TXD)
Pin 5 Ground

To connect the Concert AVR-4 to a standard PC serial com port; wire the cable in a 'null modem' arrangement using the appropriate serial cable.

### Command Structure - Issuing

The RS-232 serial control structure of the Concert AVR-4 is a string of hexadecimal values with a minimum of six bytes. When issuing a command, the structure of the string is as follows: Start Transmission, Zone Number, Command Code, Data Length, Data and End Transmission. We will use an abbreviated form for easy reference in the following format:

<ST><ZN><CC><DL><Data><ETR>

| Parameter | Command | Description |
|---|---|---|
| START | *0x21* | Begins transmission to Concert AVR-4 |
| ZONE NUMBER | *0x01* | Zone 1 |
| | *0x02* | Zone 2 |
| | *0x03* | Zone 3 |
| COMMAND CODE | *See code list* | The code of the command |
| DATA LENGTH | *0x01, 0x02 etc…* | Number of data units to follow |
| DATA | *See code index* | The parameters for the command |
| ETR | *0x0D* | End transmission |

*As an example:*
To change the Concert AVR-4 video source in Zone 1 to SAT:
0x21 0x01 0x0A 0x01 0x01 0x0D

### Command Structure - Receiving

Command processing begins when the first 0x0D (carriage return) is received. The Concert AVR-4 will respond, either by making the change specified with a status update answer code or by replying with an error answer code, within 3 seconds. More commands, however, may be sent before the Concert AVR-4 responds to the first command. When a command is received, the Concert AVR-4 echoes the command back in the following format:

<ST><ZN><CC><AC><DL><Data><ETR>

| Parameter | Command | Description |
|---|---|---|
| START | *0x21* | Begins transmission to Concert AVR-4 |
| ZONE NUMBER | *0x01* | Zone 1 |
| | *0x02* | Zone 2 |
| | *0x03* | Zone 3 |
| COMMAND CODE | *See code list* | The code of the command |
| ANSWER CODE | *0x00* | No problems – status updated |
| | *0x82* | Incorrect Zone |
| | *0x83* | Incorrect Command |
| | *0x84* | Incorrect Parameter |
| | *0x85* | Invalid Command in current state |
| | *0x86* | Data length is incorrect |
| DATA LENGTH | *0x01, 0x02 etc…* | Number of data units to follow |
| DATA | *See code list* | The parameters for the response, limited to 255 |
| ETR | *0x0D* | End transmission |

*As an example:*

Answer code for source change in Zone 1 to DVD: 0x21 0x01 0x0A 0x00 0x01 0x00 0x0D

### Simulating the RC-5 IR command via RS-232

A key feature in the Concert AVR-4 is the ability to simulate RC5 format IR commands via serial commands. The IR simulation command will contain 7 bytes as there will be 2 <Data> bytes for the RC-5 command. The actual command <CC> is 0x08 with the 2 <Data> bytes being the IR command values. The 2 data bytes are the system code then the command code, both these codes are in decimal format. Depending on your software or remote control device, a conversion of these codes to the appropriate format may be needed.

### Changes in state from different inputs

While the Concert AVR-4 is controlled by a serial command, its state may be changed by other inputs such as the front panel or through IR. Such changes in state will yield a response with an answer code from the Concert AVR-4. In order to determine the command code, you may use the response to get the code for the desired function if you can't find the listing for it in the table below.

## Serial and IR Code Tables

The following pages contain an extensive list of serial and IR codes for automation use of your Concert AVR-4. You can also download this information from the AudioControl web site at www.audiocontrol.com. Click on "Support" and then "Automation Support". You may also want to contact the manufacturers of your control systems and remotes as we proactively provide automation codes to many of them.

## Automation command and response

### Stand-by status 0x00

**Request current power state of particular Zone**

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x00 | <CC> | 0x00 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x01 Zone on |
| | | | 0x00 Zone in stand-by |
| | | <ETR> | 0x0D |

### Request current source 0x1D

| Command | | Response | | |
|---|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 | |
| <ZN> | Zone number | <ZN> | Zone number | |
| <CC> | 0x1D | <CC> | 0x1D | |
| <DL> | 0x01 | <AC> | Answer code | |
| <DATA> | 0xF0 | <DL> | 0x01 | |
| <ETR> | 0x0D | <DATA> | Current source in the specified zone | |
| | | | 0x00 | Follow Zone 1 |
| | | | 0x01 | CD |
| | | | 0x02 | DVD |
| | | | 0x03 | AV |
| | | | 0x04 | SAT |
| | | | 0x05 | DVR |
| | | | 0x06 | VCR |
| | | | 0x07 | TAPE |
| | | | 0x08 | AUX |
| | | | 0x09 | PHONO (Maestro M3) |
| | | | 0x0A | AM |
| | | | 0x0B | FM |
| | | | 0x0C | Sirius |
| | | | 0x0D | Multi-Channel (MCH) |
| | | | 0x0E | NET |
| | | <ETR> | 0x0D | |

### Status of display brightness 0x01

**Request display brightness state**

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x01 | <CC> | 0x01 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x03 Display brightness set to High |
| | | | 0x02 Display brightness set to Medium |
| | | | 0x01 Display brightness set to Low |
| | | | 0x00 Display is off |
| | | <ETR> | 0x0D |

### Headphone connection status 0x02

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x02 | <CC> | 0x02 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x01 Headphones are connected |
| | | | 0x00 Headphones aren't connected |
| | | <ETR> | 0x0D |

### Simulate IR command 0x08

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x08 | <CC> | 0x08 |
| <DL> | 0x02 | <AC> | Answer code |
| <DATA1> | RC5 System code | <DL> | 0x02 |
| <DATA2> | RC5 Command code | <DATA1> | RC5 System code |
| <ETR> | 0x0D | <DATA2> | RC5 Command code |
| | | <ETR> | 0x0D |

### Video selection 0x0A

**Changes video input, audio remains**

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x0A | <CC> | 0x0A |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - DVD | <DL> | 0x01 |
| | 0x01 - SAT | <DATA> | Current video source is returned |
| | 0x02 - AV | <ETR> | 0x0D |
| | 0x03 - DVR | | |
| | 0x04 - VCR | | |
| | 0xF0 - Request current input | | |
| <ETR> | 0x0D | | |

### Select current source audio input 0x0B

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x0B | <CC> | 0x0B |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Use analog | <DL> | 0x02 |
| | 0x01 - Use digital audio | <DATA> | 0x00 - Analog audio is in use |
| | 0x02 - Use HDMI | | 0x01 - Digital audio is in use |
| | 0xF0 - Request current source audio type | <ETR> | 0x0D |
| <ETR> | 0x0D | | |

### Set/Request Video Input type (valid only on Zone 1) 0x0C

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | 0x01 | <ZN> | Zone number |
| <CC> | 0x0C | <CC> | 0x0C |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Auto | <DL> | 0x01 |
| | 0x01 - HDMI | <DATA> | 0x00 - Auto |
| | 0x02 - Component | | 0x01 - HDMI |
| | 0x03 - S-video | | 0x02 - Component |
| | 0x04 - Composite | | 0x03 - S-video |
| | 0xF0 - Request the video type of current source | | 0x04 - Composite |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Set/ Request Volume status 0x0D

***Returns volume even if Zone is in Mute, use Mute Status request (0x0E) to find state of Mute**

****Format for the this setting differs depending on the Zone you are controlling. Zone 1 is set in .5db increments while Zone 2&3 are set in 1db increments . To set the Volume to 40 in all zones, data for Zone 1 would be 0x50 (decimal 80) while data for Zone 2 and 3 would be 0x28 (decimal 40)**

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x0D | <CC> | 0x0D |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - request current volume | <DL> | 0x02 |
| | 0x00 through 0xC6 - set the volume | <DATA1> | 0x00 (0) - 0x63 (99) |
| <ETR> | 0x0D | <DATA2> | 0x00 (0) |
| | | | 0x05 (.5) Zone 1 only |
| | | <ETR> | 0x0D |

### Mute status 0x0E

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x0E | <CC> | 0x0E |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA1> | 0x00 - Zone is muted |
| | | | 0x01 - Zone is not muted |
| | | <ETR> | 0x0D |

### Direct mode status 0x0F

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x0F | <CC> | 0x0F |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x00 - Direct mode is off |
| | | | 0x01 - Direct mode is on |
| | | <ETR> | 0x0D |

### Decode mode status for 2ch content 0x10

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x10 | <CC> | 0x0F |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x00 - Mono |
| | | | 0x01 - Stereo |
| | | | 0x02 - ProLogic II / x Movie |
| | | | 0x03 - ProLogic II / x Music |
| | | | 0x04 - ProLogic II Matrix |
| | | | 0x05 - ProLogic II Game |
| | | | 0x06 - Dolby ProLogic Emulation |
| | | | 0x07 - Neo:6 Cinema |
| | | | 0x08 - Neo:6 Music |
| | | <ETR> | 0x0D |

### Decode mode status - Multi-channel content 0x11

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x11 | <CC> | 0x11 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x00 - Mono down mix |
| | | | 0x01 - Stereo Down mix |
| | | | 0x02 - Multi-channel mode |
| | | | 0x03 - Dolby EX / DTS-ES |
| | | | 0x04 - ProLogic IIx movie |
| | | | 0x05 - ProLogic IIx music |
| | | <ETR> | 0x0D |

### Set/Request current Video output resolution status 0x13

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x13 | <CC> | 0x13 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - request video output resolution | <DL> | 0x01 |
| | 0x01 - set resolution to SD Interlaced | <DATA> | 0x01 - SD Interlaced |
| | 0x02 - set resolution to SD progressive | | 0x02 - SD Progressive |
| | 0x03 - set resolution to 720p | | 0x03 - 720p |
| | 0x04 - set resolution to 1080i | | 0x04 - 1080i |
| | 0x05 - set resolution to 1080p | | 0x05 - 1080p |
| | 0x06 - set resolution to "Preferred" | | 0x06 - "Preferred" |
| | 0xF1 - increment resolution | <ETR> | 0x0D |
| | 0xF2 - decrement resolution | | |
| <ETR> | 0x0D | | |

### Menu status 0x14

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x14 | <CC> | 0x14 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Request Menu Status | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x00 - No menus open at this time |
| | | | 0x01 - Menu open |
| | | | 0x02 - Set-up menu open |
| | | | 0x03 - Trim menu open |
| | | | 0x04 - Bass menu open |
| | | | 0x05 - Treble menu open |
| | | | 0x06 - sync menu open |
| | | | 0x07 - Sub menu open |
| | | | 0x08 - Tuner menu open |
| | | | 0x09 - Network menu open |
| | | <ETR> | 0x0D |

### FM Genre 0x03

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x03 | <CC> | 0x03 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | (v) variable |
| <ETR> | 0x0D | <DATA1> - | Program type in ASCII characters |
| | | <DATA(v) | |
| | | <ETR> | 0x0D |

### Tuner preset - recall and status 0x15

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x15 | <CC> | 0x15 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - current tuner preset | <DL> | 0x01 |
| | 0x01 - 0x32 (1-50) - preset | <DATA> | 0xFF - Currently no preset selected |
| | number to be recalled | | 0x01 - 0x32 (1-50) - current preset number |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Tune 0x16

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x16 | <CC> | 0x16 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x01 - Increment frequency by 1 | <DL> | 0x02 |
| | 0x00 - Decrement frequency by 1 | <DATA1> | FM: Frequency - MHz |
| | 0xF0 - Current frequency status | | AM: Frequency - 1000's & 100's - kHz |
| <ETR> | 0x0D | <DATA2> | FM: Frequency - 10's kHz |
| | | | AM: Frequency - 10's & 1's kHz |
| | | <ETR> | 0x0D |

### Request Sirius station 0x18

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x18 | <CC> | 0x18 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | (v) variable |
| <ETR> | 0x0D | <DATA> | Program label of Sirius station in ASCII characters |
| | | <ETR> | 0x0D |

### Request Sirius station program type 0x19

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x19 | <CC> | 0x19 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | (v) variable |
| <ETR> | 0x0D | <DATA> | Program type of Sirius station in ASCII characters |
| | | <ETR> | 0x0D |

### Request DLS information from current station 0x1A

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x1A | <CC> | 0x1A |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Sirius DLS request | <DL> | (v) variable |
| <ETR> | 0x0D | <DATA> | Label of Sirius program in ASCII characters |
| | | <ETR> | 0x0D |

### Request preset details 0x1B

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x1B | <CC> | 0x1B |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x01-0x32 (1-50): number of the preset | <DL> | (v) variable |
| <ETR> | 0x0D | <DATA1> | 0x01-0x32 (1-50): number of the preset |
| | | <DATA2> | 0x00 - AM frequency |
| | | | 0x01 - FM frequency |
| | | | 0x04 - Sirius |
| | | <DATA3> | FM: Frequency - MHz |
| | | | AM: Frequency - 1000's & 100's - kHz |
| | | <DATA4> | FM: Frequency - 10's kHz |
| | | | AM: Frequency - 10's & 1's kHz |
| | | <DATA(v)> | The Sirius name in ASCII characters |
| | | <ETR> | 0x0D |

### Network playback status 0x1C

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone number | <ZN> | Zone number |
| <CC> | 0x1C | <CC> | 0x1C |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 | <DL> | (v) variable |
| <ETR> | 0x0D | <DATA1> | 0x00 - Navigating |
| | | | 0x01 - Playing |
| | | | 0x02 - Paused |
| | | | 0xFF - Busy/Not Playing |
| | | <DATA2> - | Name of folder if navigating - ASCII characters |
| | | <DATA(v)> | Name of file if playing or paused - ASCII characters |
| | | <ETR> | 0x0D |

### Restore factory default settings 0x05

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | 0x01 | <ZN> | 0x01 |
| <CC> | 0x05 | <CC> | 0x05 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA1> | 0xAA | <DL> | 0x00 |
| <DATA2> | 0xAA | <ETR> | 0x0D |
| <ETR> | 0x0D | | |

### Display information type 0x09

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | 0x01 | <ZN> | 0x01 |
| <CC> | 0x09 | <CC> | 0x05 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | For all sources: | <DL> | 0x01 |
| | 0x00 - Set the display to Processing mode | <DATA> | Current display is returned - per command |
| | 0xD0 - Set the display to Time and Date | <ETR> | 0x0D |
| | 0xE0 - Cycle through all displayable information | | |
| | 0xF0 Current diplay type | | |
| | If current source is set to NET: | | |
| | 0x01 - Set the display to Track | | |
| | 0x02 - Set display to Artist | | |
| | 0x03 - Set display to Album | | |
| | 0x04 - Set display to audio type | | |
| | 0x05 - Set display to rate | | |
| | If current source is Sirius | | |
| | 0x01 - Set display to Artist | | |
| | 0x02 - Set display to Composer | | |
| | 0x03 - Set display to Category Name | | |
| | 0x04 - Set display to Signal Strength | | |
| | If current source is FM | | |
| | 0x01 - Set display to Radio text | | |
| | 0x02 - Set display to Program type | | |
| | 0x03 - Set display to Signal strength | | |
| | If current source is AM | | |
| | 0x01 - Set display to Signal strength | | |
| <ETR> | 0x0D | | |

### Headphone over-ride 0x1F

Activates Zone 1 mute relays when headphones are connected

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | 0x01 | <ZN> | 0x01 |
| <CC> | 0x1F | <CC> | 0x05 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x01 - Activate mute relay | <DL> | 0x00 |
| | 0x00 - Deactivate mute relays | <DATA> | State of mute relay |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Request incoming audio format 0x43

| Command | | Response | | |
|---|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 | |
| <ZN> | Zone number | <ZN> | Zone number | |
| <CC> | 0x43 | <CC> | 0x43 | |
| <DL> | 0x01 | <AC> | Answer code | |
| <DATA> | 0xF0 | <DL> | 0x02 | |
| <ETR> | 0x0D | <DATA 1> | Format of incoming audio stream | |
| | | | 0x00 | PCM |
| | | | 0x01 | Analog Direct |
| | | | 0x02 | Dolby Digital |
| | | | 0x03 | Dolby Digital EX |
| | | | 0x04 | Dolby Digital Surround |
| | | | 0x05 | Dolby Digital Plus |
| | | | 0x06 | Dolby Digital True HD |
| | | | 0x07 | DTS |
| | | | 0x08 | DTS 96/24 |
| | | | 0x09 | DTS ES Matrix |
| | | | 0x0A | DTS ES Discrete |
| | | | 0x0B | DTS ES Matrix 96/24 |
| | | | 0x0C | DTS ES Discrete 96/24 |
| | | | 0x0D | DTS HD Master Audio |
| | | | 0x0E | DTS HD High Res Audio |
| | | | 0x0F | DTS Low Bit Rate |
| | | | 0x10 | DTS Core |
| | | | 0x11 | AAC |
| | | | 0x12 | MPEG |
| | | | 0x13 | Unsupported |
| | | | 0x14 | Undetected |

**Request incoming audio format 0x43 *(continued)***

| Command | Response | |
|---|---|---|
| | <DATA 2> | Configuration of the incoming audio channels |
| | | 0x00 Dual Mono |
| | | 0x01 Center only |
| | | 0x02 Stereo only |
| | | 0x03 Stereo + mono surround |
| | | 0x04 Stereo + Surround L&R |
| | | 0x05 Stereo + Surround L&R +mono surround back |
| | | 0x06 Stereo + Surround L&R + surround back L&R |
| | | 0x07 Stereo + Surround L&R containing matrix information for surround L&R |
| | | 0x08 Stereo + Center |
| | | 0x09 Stereo + Center + mono surround |
| | | 0x0A Stereo + Center + Surround L&R |
| | | 0x0B Stereo + Center + Surround L&R + mono surround back |
| | | 0x0C Stereo + Center + Surround L&R +surround back L&R |
| | | 0x0D Stereo + Center + Surround L&R containing matrix information for surround back L&R |
| | | 0x0E Stereo Downmix (Left total Right total) |
| | | 0x0F Stereo Only (Left Only Right Only) |
| | | 0x10 Dual Mono + LFE |
| | | 0x11 Center + LFE |
| | | 0x12 Stereo + LFE |
| | | 0x13 Stereo + single surround +LFE |
| | | 0x14 Stereo + Surround L&R + LFE |
| | | 0x15 Stereo + Surround L&R + mono Surround Back + LFE |
| | | 0x16 Stereo + Surround L&R + surround back L&R +LFE |
| | | 0x17 Stereo + Surround L&R + LFE |
| | | 0x18 Stereo + Center + LFE containing matrix information for surround back L&R |
| | | 0x19 Stereo + Center + single surround + LFE |
| | | 0x1A Stereo + Surround L&R + LFE Standard 5.1 |
| | | 0x1B Stereo + Center + Surround L&R + mono Surround back +LFE 6.1 |
| | | 0x1C Stereo + Center + Surround L&R + Surround Back L&R + LFE |
| | | 0x1D Stereo + Center + Surround L&R + LFE, containing matrix information for surround back L&R 6.1 |
| | | 0x1E Stereo Downmix (Lt & Rt) + LFE |
| | | 0x1F Stereo Only (Lo&Ro) + LFE |
| | | 0x20 Unknown |
| | | 0x21 Undetected |
| | <ETR> | 0x0D |

### Treble EQ 0x35

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x35 | <CC> | 0x35 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0A - Set treble to 0db - +10db | <DL> | 0x01 |
| | 0x81 - 0x8A - Set treble to –1db - –10db | <DATA> | 0x00 - 0x0A - Treble is set to 0db - 10db |
| | 0xF1 - increment 1db | | 0x81 - 0x8A - Treble is set to –1db - –10db |
| | 0xF2 - decrement 1db | <ETR> | 0x0D |
| | 0xF0 - Request current treble value | | |
| <ETR> | 0x0D | | |

### Bass EQ 0x36

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x36 | <CC> | 0x36 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0A - Set bass to 0db - +10db | <DL> | 0x01 |
| | 0x81 - 0x8A - Set bass to –1db - –10db | <DATA> | 0x00 - 0x0A - Bass is set to 0db - 10db |
| | 0xF1 - increment 1db | | 0x81 - 0x8A - Bass is set to –1db - –10db |
| | 0xF2 - decrement 1db | <ETR> | 0x0D |
| | 0xF0 - Request current treble value | | |
| <ETR> | 0x0D | | |

### Room EQ 0x37

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x37 | <CC> | 0x37 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Request current Room EQ status | <DL> | 0x01 |
| | 0xF1 - Room EQ on | <DATA> | 0x00 - Room EQ is off |
| | 0xF2 - Room EQ off | | 0x01 - Room EQ on |
| <ETR> | 0x0D | | 0x02 - Room EQ has not been calculated |
| <ETR> | 0x0D | | |

### Dolby Volume 0x38

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x38 | <CC> | 0x38 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Dobly Volume is off | <DL> | 0x01 |
| | 0x01 - Dolby Volume is on in Music mode | <DATA> | 0x00 - Dolby Volume is off |
| | 0x02 - Dolby Volume is on in Movie mode | | 0x01 - Dolby Volume is on in Music mode |
| | 0xF0 - Request current Dolby Volume mode | | 0x02 - Dolby Volume is on in Movie mode |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Dolby Leveller 0x39

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x38 | <CC> | 0x39 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0A - Set Dolby Leveller to 0 - 10 | <DL> | 0x01 |
| | 0xF0 - Request current Dolby Leveller setting 10 | <DATA> | 0x00 - 0x0A - Dolby Leveller setting is 0 - 10 |
| | 0xF1 - Increment Dolby Leveller setting | | 0xFF - Dolby Leveller is off |
| | 0xF2 - Decrement Dolby Leveller setting | <ETR> | 0x0D |
| | 0xFF - Turn off Dolby Leveller | | |
| <ETR> | 0x0D | | |

### Dolby Volume Calibration 0x3A

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x3A | <CC> | 0x3A |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0F - Set the calibration offset to 0 - 15db | <DL> | 0x01 |
| | 0x80 - 0x8F - Set the calibration offset to –1 - –15db | <DATA> | 0x00 - 0x0F - Calibration offset is 0 - 15db |
| | 0xF0 - Request current calibration offset | | 0x80 - 0x8F - Calibration offset is –1 - –15db |
| | 0xF1 - increment calibration offset by 1db | <ETR> | 0x0D |
| | 0xF2 - Decrement calibration offset by 1db | | |
| <ETR> | 0x0D | | |

### Balance 0x3B

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x3B | <CC> | 0x3B |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x06 - Set the balance to 0 - 6 | <DL> | 0x01 |
| | 0x81 - 0x86 - Set the balance to –1 - –6 | <DATA> | 0x00 - 0x06 - Balance is 0 - 6 |
| | 0xF0 - Request current balance | | 0x81 - 0x86 - Balance is –1 - –6 |
| | 0xF1 - Increment the balance by 1db | <ETR> | 0x0D |
| | 0xF2 - Decrement the balance by 1db | | |
| <ETR> | 0x0D | | |

### Dolby Pro Logic II Dimension 0x3C

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x3C | <CC> | 0x3C |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x03 - Set Pro Logic II Dimension parameter to 0 - 3 | <DL> | 0x01 |
| | 0x81 - 0x83 - Set Pro Logic II Dimension parameter to –1 - –3 | <DATA> | 0x00 - 0x03 Pro Logic II Dimension is 0 - 3 |
| | 0xF0 - Request current Pro Logic II Dimension setting | | 0x81 - 0x83 Pro Logic II Dimension is –1 - –3 |
| | 0xF1 - Increment the Pro Logic II Dimension | <ETR> | 0x0D |
| | 0xF2 - Decrement the Pro Logic II Dimension | | |
| <ETR> | 0x0D | | |

### Dolby Pro Logic II Center Width 0x3D

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x3D | <CC> | 0x3D |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x07 - Set Pro Logic II Center Width parameter to 0 - 7 | <DL> | 0x01 |
| | 0xF0 - Request current Pro Logic II Center Width setting | <DATA> | 0x00 - 0x07 - Pro Logic II Center Width parameter is 0 - 7 |
| | 0xF1 - increment the Pro Logic II Center Width setting | <ETR> | 0x0D |
| | 0xF2 - Decrement the Pro Logic II Center Width setting | | |
| <ETR> | 0x0D | | |

### Dolby Pro Logic II Panorama 0x3E

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x3E | <CC> | 0x3E |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Request current Pro Logic II Panorama setting | <DL> | 0x01 |
| | 0xF1 - Set Dolby Pro Logic II Panorama on | <DATA> | 0x00 - Dolby Pro Logic II Panorama is off |
| | 0xF2 - Set Dolby Pro Logic II Panorama off | | 0x01 - Dolby Pro Logic II Panorama is on |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Subwoofer Trim 0x3F

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x3F | <CC> | 0x3F |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x28 - Set positive subwoofer trim in 0.25db steps (e.g. 0x08 = +2db) | <DL> | 0x01 |
| | 0x81 - 0A8 - Set negative subwoofer trim in 0.25db steps (e.g. 0x89 = -2.25db) | <DATA> | 0x00 - 0x28 - Positive subwoofer trim in 0.25db |
| | 0xF0 - Request current subwoofer trim value | | 0x81 - 0xA8 - Negative subwoofer trim in 0.25db |
| | 0xF1 - Increment the subwoofer trim by 1db | <ETR> | 0x0D |
| | 0xF2 - Decrement the subwoofer trim by 1db | | |
| <ETR> | 0x0D | | |

### Lipsync Delay 0x40

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x40 | <CC> | 0x40 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0xC8 - set lipsync delay in 5ms steps (e.g. 0x06 = 30ms) | <DL> | 0x01 |
| | 0xF0 Request current lipsync delay setting | <DATA> | 0x00 - 0xC8 - lipsync delay in 5ms steps |
| | 0xF1 Increment lipsync delay setting by 5ms | <ETR> | 0x0D |
| | 0xF2 Decrement lipsync delay setting by 5ms | | |
| <ETR> | 0x0D | | |

### Compression 0x41

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x41 | <CC> | 0x41 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Compression off | <DL> | 0x01 |
| | 0x01 - Set compression to On/Auto (follows HD audio stream metadata compression flag and sets compression to On if no metadata is present ) | <DATA> | 0x00 - Compression off |
| | 0x02 - set compression to On | | 0x01 - Compression is set to On/Auto |
| | 0xF0 - Request current compression setting | | 0x02 - Compression is On |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Request incoming video parameters 0x42

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x42 | <CC> | 0x42 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Request incoming video parameters | <DL> | 0x07 |
| <ETR> | 0x0D | <DATA1> | Horizontal resolution MSB (e.g. for 1080p: 0x07 since 1920 =0x0780) |
| | | <DATA2> | Horizontal resolution LSB (e.g. for 1080p: 0x80 since 1920 = 0x0780) |
| | | <DATA3> | Vertical resolution MSB (e.g. for 1080p: 0x04 since 1080 = 0x0438) |
| | | <DATA4> | Vertical resolution LSB (e.g. for 1080p: 0x38 since 1080 = 0x0438) |
| | | <DATA5> | Refresh rate for full image update (half the field rate for interlaced signals) (e.g. for 60Hz interlaced: 0x1E) |
| | | <DATA6> | 0x00 - progressive |
| | | | 0x01 - interlaced |
| | | <DATA7> | Aspect: |
| | | | 0x00 - undefined |
| | | | 0x01 - 4:3 |
| | | | 0x02 - 16:9 |
| | | <ETR> | 0x0D |

### Request incoming audio sample rate 0x44

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x44 | <CC> | 0x44 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Request incoming audio sample rate | <DL> | 0x01 |
| <ETR> | 0x0D | <DATA> | 0x00 - 32KHz |
| | | | 0x01 - 44.1KHz |
| | | | 0x02 - 48KHz |
| | | | 0x03 - 88.2KHz |
| | | | 0x04 - 96KHz |
| | | | 0x05 - 176.4KHz |
| | | | 0x06 - 196KHz |
| | | | 0x07 - unknown |
| | | | 0x08 - undetected |
| | | <ETR> | 0x0D |

### Set/request Sub Stereo Trim 0x45

Query or set the sub trim value for stereo mode

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x45 | <CC> | 0x45 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - set the Sub Stereo Trim to 0db | <DL> | 0x01 |
| | 0x80 - 0xA8 - set the Sub Stereo Trim value to -0.25db – -10.00db | <DATA> | 0x00 - Sub Stereo Trim value is set to 0.00db |
| | 0xF0 - Request Sub Stereo Trim value | | 0x80 - 0xA8 - Sub Stereo Trim value in -0.25db steps |
| | 0xF1 - Increment Sub Stereo Trim value by 0.25db steps | <ETR> | 0x0D |
| | 0xF2 - Decrement Sub Stereo Trim value by 0.25db steps | | |
| <ETR> | 0x0D | | |

### Set/Request Video Brightness 0x46

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x46 | <CC> | 0x46 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0A - set the Brightness value to 0 - 10 | <DL> | 0x01 |
| | 0x81 - 0x8A - set the Brightness value to –1 - –10 | <DATA> | 0x00 - 0x0A - Brightness value 0 - 10 |
| | 0xF0 - Request Brightness value | | 0x81 - 0x8A - Brightness value –1 - –10 |
| | 0xF1 - Increment Brightness value by 1 | <ETR> | 0x0D |
| | 0xF2 - Decrement Brightness value by 1 | | |
| <ETR> | 0x0D | | |

### Set/Request Contrast 0x47

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x47 | <CC> | 0x47 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0A - set the Contrast value to 0 - 10 | <DL> | 0x01 |
| | 0x81 - 0x8A - set the Contrast value to –1 - –10 | <DATA> | 0x00 - 0x0A - Contrast value 0 - 10 |
| | 0xF0 - Request Contrast value | | 0x81 - 0x8A - Contrast value -1 – -10 |
| | 0xF1 - Increment Contrast value by 1 | <ETR> | 0x0D |
| | 0xF2 - Decrement Contrast value by 1 | | |
| <ETR> | 0x0D | | |

### Set/Request Color 0x48

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x48 | <CC> | 0x48 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - 0x0A - set the Color value to 0 - 10 | <DL> | 0x01 |
| | 0x81 - 0x8A - set the Color value to –1 - –10 | <DATA> | 0x00 - 0x0A - Color value 0 - 10 |
| | 0xF0 - Request Color value | | 0x81 - 0x8A - Color value –1 - –10 |
| | 0xF1 - Increment Color value by 1 | <ETR> | 0x0D |
| | 0xF2 - Decrement Color value by 1 | | |
| <ETR> | 0x0D | | |

### Set/Request Picture Mode 0x49

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0X49 | <CC> | 0x49 |
| <DL> | 0X01 | <AC> | Answer code |
| <DATA> | 0X00 - Set Picture Mode to Auto | <DL> | 0x01 |
| | 0x01 - Set Picture Mode to Video | <DATA> | 0x00 - Picture Mode is set to Auto |
| | 0x02 - Set Picture mode to Film | | 0x01 - Picture Mode is set to Video |
| | 0xF0 - Request Picture Mode | | 0x02 - Picture Mode is set to Film |
| | 0xF1 - Increment Picture Mode | <ETR> | 0x0D |
| | 0xF2 - Decrement Picture Mode | | |
| <ETR> | 0x0D | | |

### Set/Request Edge Enhancment 0x4A

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x4A | <CC> | 0x4A |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Set Edge Enhancement to Off | <DL> | 0x01 |
| | 0x01 - Set Edge Enhancement to Low | <DATA> | 0x00 - Edge Enhancement is Off |
| | 0x02 - Set Edge Enhancement to Medium | | 0x01 - Edge Enhancement is set to Low |
| | 0x03 - Set Edge Enhancement to High | | 0x02 - Edge Enhancement is set to Medium |
| | 0xF0 - Request current Edge Enhancement value | | 0x03 - Edge Enhancement is set to High |
| | 0xF1 - Increment Edge Enhancement value | <ETR> | 0x0D |
| | 0xF2 - Decrement Edge Enhenacement value | | |
| <ETR> | 0x0D | | |

### Set/Request Mosquito Noise Reduction 0x4B

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x4B | <CC> | 0x4B |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Set Mosquito NR to Off | <DL> | 0x01 |
| | 0x01 - Set Mosquito NR to Low | <DATA> | 0x00 - Mosquito NR is Off |
| | 0x02 - Set Mosquito NR to Medium | | 0x01 - Mosquito NR is set to Low |
| | 0x03 - Set Mosquito NR to High | | 0x02 - Mosquito NR is set to Medium |
| | 0xF0 - Request current Mosquito NR value | | 0x03 - Mosquito NR is set to High |
| | 0xF1 - Increment Mosquito NR value | <ETR> | 0x0D |
| | 0xF2 - Decrement Mosquito NR value | | |
| <ETR> | 0x0D | | |

### Set/Request Noise Reduction 0x4C

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x4C | <CC> | 0x4C |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Set Noise Reduction to Off | <DL> | 0x01 |
| | 0x01 - Set Noise Reduction to Low | <DATA> | 0x00 - Noise Reduction is Off |
| | 0x02 - Set Noise Reduction to Medium | | 0x01 - Noise Reduction is set to Low |
| | 0x03 - Set Noise Reduction to High | | 0x02 - Noise Reduction is set to Medium |
| | 0xF0 - Request current Noise Reduction value | | 0x03 - Noise Reduction is set to High |
| | 0xF1 - Increment Noise Reduction value | <ETR> | 0x0D |
| | 0xF2 - Decrement Noise Reduction value | | |
| <ETR> | 0x0D | | |

**Set/Request Block Noise Reduction 0x4D**

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x4D | <CC> | 0x4D |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Set Block Noise Reduction to Off | <DL> | 0x01 |
| | 0x01 - Set Block Noise Reduction to Low | <DATA> | 0x00 - Block Noise Reduction is Off |
| | 0x02 - Set Block Noise Reduction to Medium | | 0x01 - Block Noise Reduction is set to Low |
| | 0x03 - Set Block Noise Reduction to High | | 0x02 - Block Noise Reduction is set to Medium |
| | 0xF0 - Request current Block Noise Reduction value | | 0x03 - Block Noise Reduction is set to High |
| | 0xF1 - Increment Block Noise Reduction value | <ETR> | 0x0D |
| | 0xF2 - Decrement Block Noise Reduction value | | |
| <ETR> | 0x0D | | |

**Set/Request Zone 1 OSD 0x4E**

| Command | | Response | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x4E | <CC> | 0x4E |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0xF0 - Request current state of Zone 1 OSD | <DL> | 0x01 |
| | 0xF1 - Set Zone 1 OSD to On | <DATA> | 0x00 - Zone 1 OSD is On |
| | 0xF2 - Set Zone 1 OSD to Off | | 0x01 - Zone 1 OSD is Off |
| <ETR> | 0x0D | <ETR> | 0x0D |

### Set/Request Video Output Switching 0x4F

| Sets or Requests the HDMI video output selection and priority | | | |
|---|---|---|---|
| **Command** | | **Response** | |
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x4F | <CC> | 0x4F |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Set HDMI Output 1 Auto-Priority | <DL> | 0x01 |
| | 0x01 - Set HDMI Output 2 Auto-Priority | <DATA> | 0x00 - HDMI Ouput 1 Auto-Priority |
| | 0x02 - Set HDMI Output 1 | | 0x01 - HDMI Output 2 Auto-Priority |
| | 0x03 - Set HDMI Output 2 | | 0x02 - HDMI Output 1 |
| | 0x04 - Set HDMI Output 1 & 2 | | 0x03 - HDMI Output 2 |
| | 0xF0 - Request current video output switching | | 0x04 - HDMI Output 1 & 2 |
| | 0xF1 - Increment setting | <ETR> | 0x0D |
| | 0xF2 - Decrement setting | | |
| <ETR> | 0x0D | | |

### Set/Request Output Frame Rate 0x50

| **Command** | | **Response** | |
|---|---|---|---|
| <ST> | 0x21 | <ST> | 0x21 |
| <ZN> | Zone Number | <ZN> | Zone number |
| <CC> | 0x50 | <CC> | 0x50 |
| <DL> | 0x01 | <AC> | Answer code |
| <DATA> | 0x00 - Set the Frame Rate to Auto | <DL> | 0x01 |
| | 0x01 - Set the Frame Rate to Follow the Source | <DATA> | 0x00 - Frame Rate is set to Auto |
| | 0x02 - Set the Frame Rate to 50Hz | | 0x01 - Frame Rate is set to 50Hz |
| | 0x03 - Set the Frame Rate to 60Hz | | 0x02 - Frame Rate is set to 60Hz |
| | 0xF0 - Request the current Frame Rate | <ETR> | 0x0D |
| | 0xF1 - Increment setting | | |
| | 0xF2 - Decrement setting | | |
| <ETR> | 0x0D | | |

## RC5 code table

### General functions

| System Code | Command Code |
|---|---|
| Stand-by | 16 - 12 |
| Power on | 16 - 123 |
| Power off | 16 - 124 |
| Mute toggle | 16 - 13 |
| Mute on | 16 - 119 |
| Mute off | 16 - 120 |
| Volume up | 16 - 16 |
| Volume down | 16 - 17 |
| Menu | 16 - 82 |
| Display brightness | 16 - 59 |
| Select | 16 - 87 |
| Select SAT | 16 - 0 |
| Select Phono | 16 - 1 |
| Select DVD | 16 - 4 |
| Select AV | 16 - 2 |
| Select NET | 16 - 11 |
| Select DVR | 16 - 34 |
| Select Tuner | 16 - 3 |
| Select AM | 16 - 52 |
| Select FM | 16 - 54 |
| Select Sirius | 16 - 72 |
| Select Tape | 16 - 5 |
| Select VCR | 16 - 6 |
| Select CD | 16 - 7 |
| Select Aux | 16 - 8 |
| Select Multi-channel | 16 - 9 |
| Random | 16 - 48 |
| Repeat | 16 - 49 |
| Navigate up | 16 - 86 |
| Navigate down | 16 - 85 |
| Navigate right | 16 - 80 |
| Navigate left | 16 - 81 |

| System Code | Command Code |
|---|---|
| Cycle between Decode modes | 16 - 32 |
| Track forward | 16 - 56 |
| Track back | 16 - 57 |
| NET Play/pause | 16 - 70 |
| Direct mode on/off toggle | 16 - 10 |
| Discrete Direct mode on | 16 - 78 |
| Discrete Direct mode off | 16 - 79 |
| Room EQ on/off toggle / NET “Now playing” screen | 16 - 30 |
| Dolby Volume on/off toggle / NET Play & pause | 16 - 70 |
| Bass control menu | 16 - 39 |
| Bass increment | 16 - 44 |
| Bass decrement | 16 - 45 |
| Speaker trim | 16 - 37 |
| Subwoofer control menu | 16 - 51 |
| Subwoofer increment | 16 - 105 |
| Subwoofer decrement | 16 - 108 |
| Treble control menu | 16 - 14 |
| Treble incremement | 16 - 46 |
| Treble decrement | 16 - 98 |
| Favorite up | 16 - 41 |
| Favorite down | 16 - 42 |
| Home | 16 - 43 |
| Zone toggle | 16 - 95 |
| Follow Zone 1 | 16 - 20 |
| Cycle between output resolutions | 16 - 47 |
| Cycle between aspect ratios | 16 - 19 |
| Lipsync control menu | 16 - 50 |
| Lipsync increment by 1ms | 16 - 100 |
| Lipsync decrement by 1ms | 16 - 101 |

## Tuner Functions

| | |
|---|---|
| Number 0 | 17 - 0 |
| Number 1 | 17 - 1 |
| Number 2 | 17 - 2 |
| Number 3 | 17 - 3 |
| Number 4 | 17 - 4 |
| Number 5 | 17 - 5 |
| Number 6 | 17 - 6 |
| Number 7 | 17 - 7 |
| Number 8 | 17 - 8 |
| Number 9 | 17 - 9 |
| Select FM | 16 - 54 |
| Select AM | 16 - 52 |
| Increment preset/ Navigate up | 17 - 86 |
| Decrement preset/ Navigate down | 17 - 85 |
| Increase tuning/Navigate right | 17 - 77 |
| Decrease tuning/Navigate left | 17 - 78 |
| Band | 17 - 50 |
| Menu | 17 - 125 |
| Preset up/Sirius category up | 17 - 32 |
| Preset down/Sirius category down | 17 - 33 |
| Page down - preset list | 17 - 37 |
| Page up - preset list | 17 - 38 |
| Delete selected preset | 17 - 41 |

## Discrete Zone 2 & 3 commands

| | |
|---|---|
| Zone 2 Power On | 23 - 123 |
| Zone 2 Power Off | 23 - 124 |
| Zone 2 Volume Up | 23 - 1 |
| Zone 2 Volume Down | 23 - 2 |
| Zone 2 Mute toggle | 23 - 3 |
| Zone 2 Mute on | 23 - 4 |
| Zone 2 Mute off | 23 - 5 |
| Zone 2 SAT | 23 - 8 |
| Zone 2 DVD | 23 - 7 |
| Zone 2 AV | 23 - 9 |
| Zone 2 NET | 23 - 19 |
| Zone 2 FM | 23 - 14 |
| Zone 2 AM | 23 - 15 |
| Zone 2 DVR | 23 - 12 |
| Zone 2 AUX | 23 - 13 |
| Zone 2 Tape | 23 - 10 |
| Zone 2 VCR | 23 - 11 |
| Zone 2 CD | 23 - 6 |
| Zone 2 Sirius | 23 - 16 |
| Zone 3 Power on | 23 - 121 |
| Zone 3 Power off | 23 - 122 |
| Zone 3 Volume Up | 23 - 20 |
| Zone 3 Volume Down | 23 - 21 |
| Zone 3 Mute | 23 - 22 |
| Zone 3 Mute On | 23 - 23 |
| Zone 3 Mute Off | 23 - 24 |

## Troubleshooting Common Problems

### General

**There are no lights on the Concert AVR-4**

✓ Pressing any button or the Standby button on the front panel should wake the Concert AVR-4.

✓ Verify that the power cord is plugged into a live AC outlet.

✓ Verify that the rear panel Power switch on the Concert AVR-4 is "On".

**The main front panel display is blank**

✓ Press the Display button. This button controls the display brightness and also allows you to turn the display off entirely.

**The main zone changes while selecting sources from Zone 2**

✓ Change the Zone 1 Control option in the Zone 2 Configuration Menu to Off.

### Video

**No video/picture**

✓ Verify your video display or projector is turned on and set to the correct input for the Concert AVR-4. Press the Menu button on the Concert AVR-4 and look for the Main Menu to show on the video display.

✓ Verify the correct input on the video display is selected for the output of the source (i.e. Component Video if the output of the DVD player is Component).

✓ Verify the Video Input assignment configurations. Make certain that the correct video input is assigned to the source you are playing.

✓ If at any point you need to reset the video output resolution and frame rate to the default setting, push and hold the "Select" button for 3 seconds.

✓ If you are using a Blu-ray player with a 1080p/24 fps (frames per second) format, you will want to confirm the output format of the player you are using matches with the input format of your display device. The Concert AVR-4 supports both 1080p/24 fps (frames per second) and the more commonly used 1080p/60 fps video formats. To properly utilize the 1080p/24 format you will want to make sure that the source device (i.e. Blu-ray player) and the display device (i.e. projector or TV) are both capable of supporting this format. In the Video Output section of the Setup menus, set the Output Resolution of your Concert AVR-4 to 1080p (not Preferred) and make sure that the Frame Rate is set to Auto. Failure to do any of the above could result in no image.

**No Video on Zone 2**

✓ Verify the composite video input from source is connected.

**There is no On-Screen Display (OSD)**

✓ Verify the OSD is turned on in the Concert AVR-4 configuration settings.

✓ Verify that the correct input is selected on the video display or projector.

## Audio

**The audio doesn't match the video**

✓ The Video and Audio input can be selected independently in the Main Menu. Verify they are set the same.

✓ Verify the correct Video Input and Digital Audio input assignments are configured for the Source input button.

**The sound is poor or distorted**

✓ Verify the speaker settings configuration matches your speakers. If a speaker is set to Large and it cannot reproduce full range bass, you will hear distortion.

✓ If the trouble is only on some channels: Verify the audio RCA cables to the power amplifiers are working and seated properly.

✓ If the trouble is in all channels: Verify the Input Trim setting in the Advanced Configurations is not set too low.

**Cannot select Dolby Digital or DTS decoding mode**

✓ The Concert AVR-4 can only decode formats encoded onto the source. Normally these are marked on the packaging or liner notes of the material.

✓ Verify that the correct format is selected in the Start menu of the DVD.

✓ Verify that the digital input from the source is properly connected to the Concert AVR-4.

✓ Verify that the digital output of the source is enabled. Some DVD players have a setup menu that can only be accessed if there is no disk in the player.

**Hum on analog inputs**

✓ Verify that all the two channel analog audio cables are connected properly.

✓ If the hum only occurs on one source, try a different set of connecting cables.

✓ If the hum occurs on a source with an external connection such as an antenna or cable TV, try disconnecting that input. If the hum disappears, put a ground isolator on that connection.

**No audio on Zone 2 or 3**

✓ Zone 2 and Zone 3 are muted when units is first turned on.

**No Zone 2 audio when playing a DTS encoded video**

✓ Most DVD players cannot output a stereo analog version of the soundtrack while playing a DTS encoded disk. If you want to watch the movie in the second zone, select the Dolby Digital soundtrack on the disk.

**Unable to adjust the Bass and Treble controls**

✓ The Bass and Treble tone controls are defeated.

## WARRANTY

…and now a word from the legal department...

People are scared of warranties. Lots of fine print. Months of waiting around. Well, fear no more. This warranty is designed to make you rave about us to your friends. It's a warranty that looks out for you and helps you resist the temptation to have your friend, who's "good with electronics", try to repair your AudioControl product. So go ahead, read this warranty, then take a few days to enjoy your new Concert AVR-4 home theater system before logging onto the our web site at www.audiocontrol.com and register your purchases.

"Conditional" doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, we will warrant all materials and workmanship on the Concert AVR-4 for five (5) years from the date you bought it, and we will fix or replace it, at our option, during that time. Here are the conditional conditions:

1. You need to register your purchases of the Concert AVR-4 with us by going to the AudioControl web site (www.audiocontrol.com), click on the "Home Theater" tab and then go to the warranty registration department and follow the directions.

2. You must keep your sales receipt for proof of purchase showing when and from whom the unit was bought. We're not the only ones who require this, so it's a good habit to get into with any major purchase.

3. The Concert AVR-4 must have originally been purchased from an authorized AudioControl dealer. You do not have to be the original owner, but you do need a copy of the original sales receipt or invoice.

4. You cannot let anybody who isn't: (A) the AudioControl factory; (B) somebody authorized in writing by AudioControl to service the Concert AVR-4. If anyone other than (A) or (B) messes with the Concert AVR-4, that voids your warranty.

5. The warranty is also void if the serial number is altered or removed, or if the Concert AVR-4 has been used improperly. Now that sounds like a big loophole, but here is all we mean by it:

Unwarranted abuse is: (A) physical damage (don't use the Concert AVR-4 to level your projection TV); (B) improper connections (120 volts into the RCA jacks can fry the poor thing); (C) sadistic things. This is the best product we know how to build, but if you strap it to the front bumper of your Range Rover, something will break.

Assuming you conform to 1 through 5 (and it really isn't all that hard to do) we get the option of fixing your original unit or replacing it with a new one.

## LEGALESE SECTION

This is the only warranty given by AudioControl. This warranty gives you specific legal rights that vary from state to state. Promises of how well the Concert AVR-4 will perform are not implied by this warranty. Other than what we have covered in this warranty, we have no obligation, express or implied. Also, we will not be obligated for direct or indirect consequential damage to your system caused by hooking up or operating the AudioControl Concert AVR-4.

Failure to complete the warranty registration process negates any service claims.

## SHOULD YOU EVER NEED SERVICE...

Normally service will be handled by your AudioControl system professional who installed the system. If you're the take charge kind of person who wants to do this yourself, contact AudioControl, either by phone 425/775-8461 or email to sound.better@audiocontrol.com. We'll verify if there is anything wrong that you can fix yourself, or assist you in arranging to have it sent back to our factory for repair. Please include the following items with the returning unit:

1. A copy of your proof of purchase (that sales receipt we've been harping about). No originals please. We cannot guarantee returning them to you.

2. A brief explanation of the trouble you are having with the Concert AVR-4.

3. A return street address. (No P.O. Boxes, please)

4. A daytime phone number in case our technician has a question about the problem you are having.

You're responsible for the freight charges to us, but we'll pay the return freight back. We match whatever shipping method you send it to us, so if you return the unit overnight freight, we send it back overnight. We recommend UPS for any shipments.

## Specifications

### Concert AVR-4 Home Theater Receiver Specifications

**Inputs**

Analog Audio Inputs . . . . . 7 Stereo Pairs
Nominal Audio Input Sensitivity . . . . . 500mV-4V
Input Impedance . . . . . 47 ohms
Signal-to-noise . . . . . 100dB
Multi-channel Analog Audio Input . . . . . 1 (8 channels)
Digital Audio Inputs . . . . . 3 Coax, 4 Optical
Video Inputs . . . . . 5 Component, 5 Composite, 5 S-Video
HDMI Inputs . . . . . 5

**Outputs**

Speaker Level Channels . . . . . Seven
Power Output . . . . . 120 Watts Per Channel, All Channels Driven into 8 ohms
Minimum Speaker Load . . . . . 4 ohms
Total Harmonic Distortion . . . . . less than 0.2%
Frequency Response . . . . . 20Hz to 20kHz
HDMI Outputs . . . . . 2 assignable
Main Audio Outputs . . . . . 7 main channels, 3 subwoofers
Digital Audio Output . . . . . 1 Coax, 1 Optical
Main Video Outputs . . . . . 1 Component, 3 Composite, 3 S-Video
Second Zone Output . . . . . Stereo Audio plus Composite & S-Video
Third Zone Output . . . . . Stereo Audio

**Control Audio**

12 Volt Trigger Outputs . . . . . Three - Main, Zone 2, Zone 3
RS-232 Serial Control . . . . . 1 - DB-9
IR Receiver Input . . . . . Three – Main, Zone 2, Zone 3 (3.5 mm Minijack)
IR Emitter Output . . . . . One (3.5 mm Minijack)

**General**

Power Consumption (Standby) . . . . . 3 Watts
Dimensions . . . . . 17”W x 16.5”D x 7H
Weight . . . . . 60 lbs

AudioControl®

*For Those Who Consider Perfection Possible*®

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