

MOTIVA



*WHERE PASSION.....
AND AUDIO MERGE*

RSP-1

PROFESSIONAL STEREO PREAMPLIFIER/PROCESSOR

USER'S GUIDE

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Safety Precautions

Read this User's Guide thoroughly before attempting to install and configure the Emotiva RSP-1 Preamplifier. All the safety and operation instructions should be read before any operation of the component(s) begin. After successful installation and configuration of the Emotiva RSP-1 Preamplifier, be sure to retain this manual in a safe place for any future reference needs.

All warnings on the Emotiva RSP-1 Preamplifier and in these operating instructions should be followed. Safety is a key component to a long lasting and trouble free installation. The vast majority of the subsequent safety precautions involve simple common sense. If you are not comfortable with the installation of audio/video entertainment equipment, it will be to your benefit to seek the services of a qualified installation professional.

- *The Emotiva RSP-1 Preamplifier should NEVER be used near water such as a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.*
- *The Emotiva RSP-1 Preamplifier should be situated so that its location or installation position does not interfere with proper ventilation.*
- *The Emotiva RSP-1 Preamplifier should not be situated on a bed, sofa, rug, or similar surface that may block any ventilation openings; or placed in a built-in installation such as a bookcase, cabinet, or closed equipment rack that may impede the flow of air through ventilation openings. If installed in a closed equipment rack for custom installations, be sure to add forced air ventilation so that it has adequate air circulation.*
- *The Emotiva RSP-1 Preamplifier should be situated away from heat sources such as radiators, or any other devices which produce heat.*
- *The Emotiva RSP-1 Preamplifier should be connected to a power supply only of the type described in this User's Guide and what is labeled on the RSP-1 component. Power supply cords should be routed so that they are not in high foot traffic areas or pinched by items placed upon or against them, paying particular attention to cords at the wall plugs, convenience receptacles, and the point where they connect into the RSP-1 Preamplifier. The power cord of the RSP-1 Preamplifier should be unplugged from the outlet when unused for a long period of time.*

When it's time for cleaning the Emotiva RSP-1 Preamplifier, it should be cleaned only as recommended in this User's Guide. Never spray liquids directly into the component's vent openings. Care should be taken so that small objects do not fall into the inside of the RSP-1 Preamplifier.

The following situations require your Emotiva RSP-1 Amplifier is serviced only by qualified service personnel:

1. *The power-supply cord or the plug has been damaged; or*
2. *Objects have fallen, or liquid has spilled into the component; or*
3. *The RSP-1 has been exposed to rain; or*
4. *The RSP-1 does not appear to operate normally or exhibits a marked change in performance; or*
5. *The RSP-1 has been dropped, or its enclosure or chassis is damaged.*

The user should not attempt to service the RSP-1 Preamplifier beyond the means described in this User's Guide. All other servicing should be referred to qualified service personnel.

To prevent electric shock, do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, un prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans laisser aucune partie à découvert.

Grounding or Polarization — Precautions should be taken so that the grounding or polarization means of the component is not defeated.

This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION — Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édictés par les ministères des communications du Canada.

For questions regarding service, please contact:

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WARNING – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION: POUR ÉVITER LES CHOCs ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

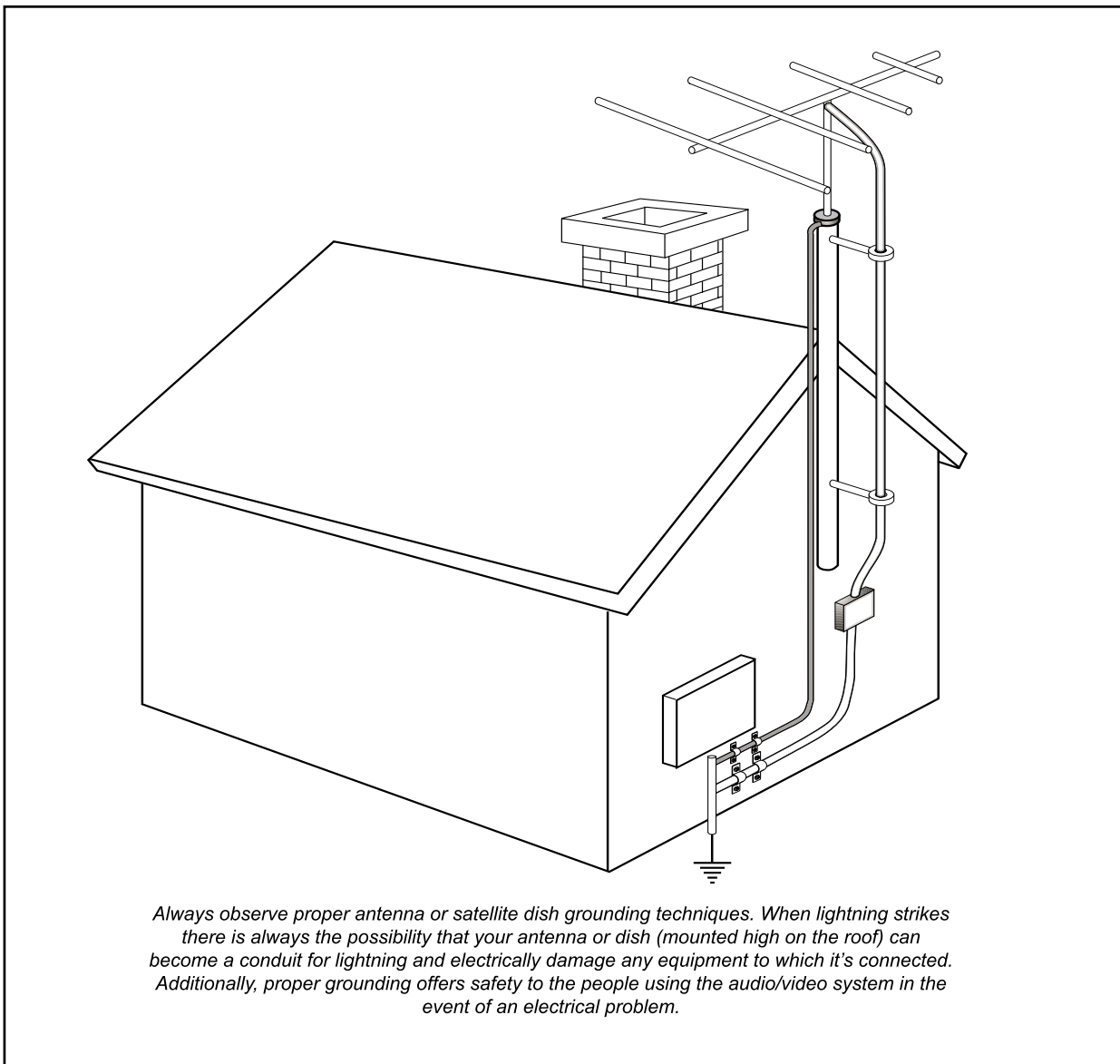
NEC (National Electrical Code) Standards

A Note for the Cable Television (CATV) Installer

This reminder is to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and in particular, specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

Antenna Grounding Outside the House

If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the lead-in wire to an antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See diagram below.



Thank You for your RSP-1 Purchase

Dear Home Entertainment Enthusiast,

Thank you for purchasing the Emotiva RSP-1 Preamplifier. We sincerely believe that it offers you outstanding performance and value. Emotiva products are engineered and produced with the highest quality materials and incorporate the latest technology. We think you will find the Emotiva RSP-1 meets or exceeds your expectations.

The Emotiva RSP-1 is unlike any two channel home audio preamplifier on the market. It has been designed with the user in mind and in consideration of both past and current technologies. By employing features that makes sense, yet with a clear focus on the priority of superb sound reproduction, the Emotiva RSP-1 allows you to spend more time enjoying your music. What's more, the Emotiva RSP-1 does it all with exceptionally refined cosmetics and a build quality that will satisfy even the most discriminating tastes.

The Emotiva RSP-1 features an array of leading edge technologies and all the features necessary to perform the functions expected of a high end stereo preamplifier. At Emotiva, we remember that creating home entertainment products means that they should be easy to use while delivering unparalleled performance.



Unpacking the RSP-1

The Emotiva RSP-1 Preampifier should reach you in flawless condition. If you notice any shipping damage or other issues upon unpacking the unit, please contact your Emotiva Retailer immediately.

Inventory

Contained in the box should be the RSP-1 unit, the remote control (with CR2032 battery installed), an IEC standard power cord, and this user's manual.

Gently lift out the unit and remove all the packing material and accessories. It is important to save all the packing materials and the box in case your Emotiva RSP-1 ever needs to be moved or shipped back to the factory for service.

Make sure that you keep your sales receipt. It is the only way for Emotiva to establish the duration of your Limited Warranty and it may come in useful for insurance purposes.

Please take a moment to fill out and mail the Emotiva Customer Response card.

Recording the Serial Number

Please read the serial number located on the rear panel and record it below. Also record the place where you purchased this product and the date of purchase.

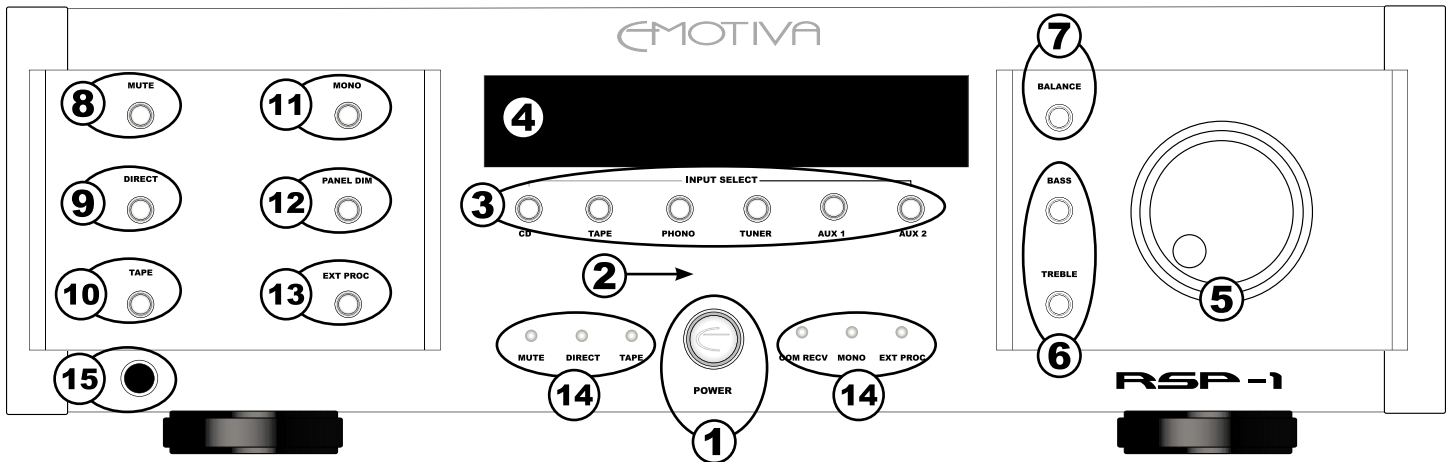
Model Number	_____ RSP-1 _____
Serial Number	_____
Place of Purchase	_____
Date of Purchase	_____

Emotiva RSP-1 Preamplifier

Audiophile 2 Channel Preamplifier Features

- *Precision low noise phono input with moving magnet or moving coil capability*
- *Five stereo inputs with precision instrumentation grade relay switching*
- *Microprocessor controlled pure analog signal path*
- *VFD display for all inputs and functions*
- *Full remote control operation*
- *Completely integrated bass manager for 2.1 operation with selectable frequency stereo high pass and mono low pass outputs*
- *Independent full range outputs (available simultaneously with 2.1 output)*
- *Tiffany style machined and gold plated discrete RCA connectors for all inputs and outputs*
- *All outputs, stereo and 2.1, are also available on balanced XLR connectors (standard)*
- *Tape monitor loop*
- *External processor loop*
- *Source Direct bypass*
- *Stereo / Mono switching*
- *Treble and bass trim controls*
- *Large format precision film volume potentiometer with motorized control*
- *Headphone output*
- *Illuminated input indicators*
- *Panel dimmer*
- *Milled multi-element floating wing faceplate with indirect cobalt blue illumination.*
- *Infrared input and output connectors*
- *12V trigger output*
- *High quality machined aluminum remote control with discrete tact switches*
- *IEC power inlet, 120/230 VAC user configurable*

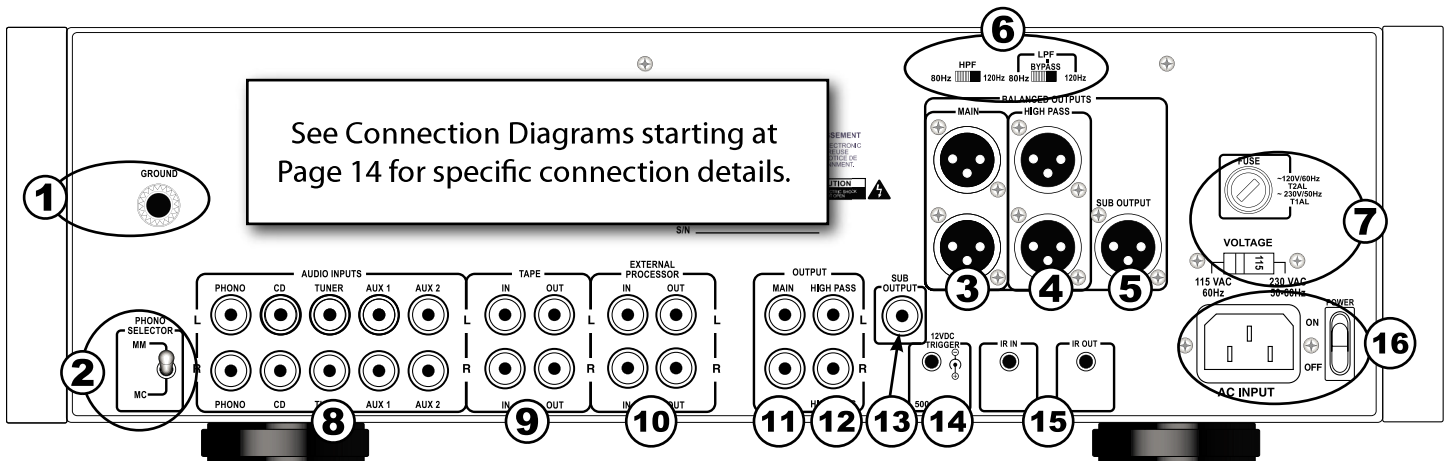
RSP-1 Front Panel Layout



- 1 Soft Touch Power Switch**
This switch provides the ON/OFF control of the RSP-1 from the front panel. When the unit is off and in standby mode, the switch illuminates yellow. Once the unit is turned on, the switch illuminates blue. The unit can also be turned ON and OFF with the supplied remote control.
- 2 I/R Receiver Window**
Point the remote at this window for operation of the RSP-1 by remote.
- 3 Source Selection Buttons**
These buttons provide selection capability of each source input on the RSP-1.
- 4 Vacuum Fluorescent Display**
The cool blue VFD display shows the source input as well as other information.
- 5 Main Volume Knob**
This knob provides the main volume for the system. It is a motorized potentiometer that also moves when volume is adjusted via remote.
- 6 Bass and Treble Adjustments**
Push in to release these adjustment controls for either Bass or Treble. Once adjusted, push in again to sit flush with the aluminum faceplate.
- 7 Balance Adjustment**
Push in to release this adjustment controls for Balance. Once adjusted, push in again to sit flush with the aluminum faceplate.
- 8 Mute Button**
Push to mute the RSP-1. The MUTE LED will illuminate when this feature is engaged. This feature is also available via remote.
- 9 Direct Button**
Push to bypass all of the preamp functions of the RSP-1 including the external processor loop and bass/treble controls. The DIRECT LED will illuminate when this feature is engaged. This feature is also available via remote.
- 10 Tape Monitor Button**
Push to switch to the TAPE input/output. When connected to the TAPE inputs and outputs, this will enable recording from the current input selected on RSP-1. The TAPE LED will illuminate when this feature is engaged. You can also listen to what will be recorded.
- 11 Mono Button**
Push to combine left and right (L+R) channels of the RSP-1. The MONO LED will illuminate when this feature is engaged. This feature is also available via remote.
- 12 Panel Dim**
Push to dim the panel illumination. There are 3 levels of panel dimming available: Bright, Medium, Dim. Pressing the PANEL DIM button scrolls through these settings.
- 13 External Processor Button**
Push to switch to the External Processor input/output. When connected to the EXT PROC inputs and outputs, this will enable signal processing of the current input selection to pass through the processor loop. The EXT PROC LED will illuminate when this feature is engaged. This feature is also available via remote.
- 14 Activity LEDs**
These LEDs illuminate when the labeled function is engaged. All of the labeled indicators are available as remote commands. When receiving remote commands, the COM/RECV LED illuminates as well.
- 15 Headphone Jack**
A standard 1/4" Headphone jack is provided on the front panel.

RSP-1 Rear Panel Layout

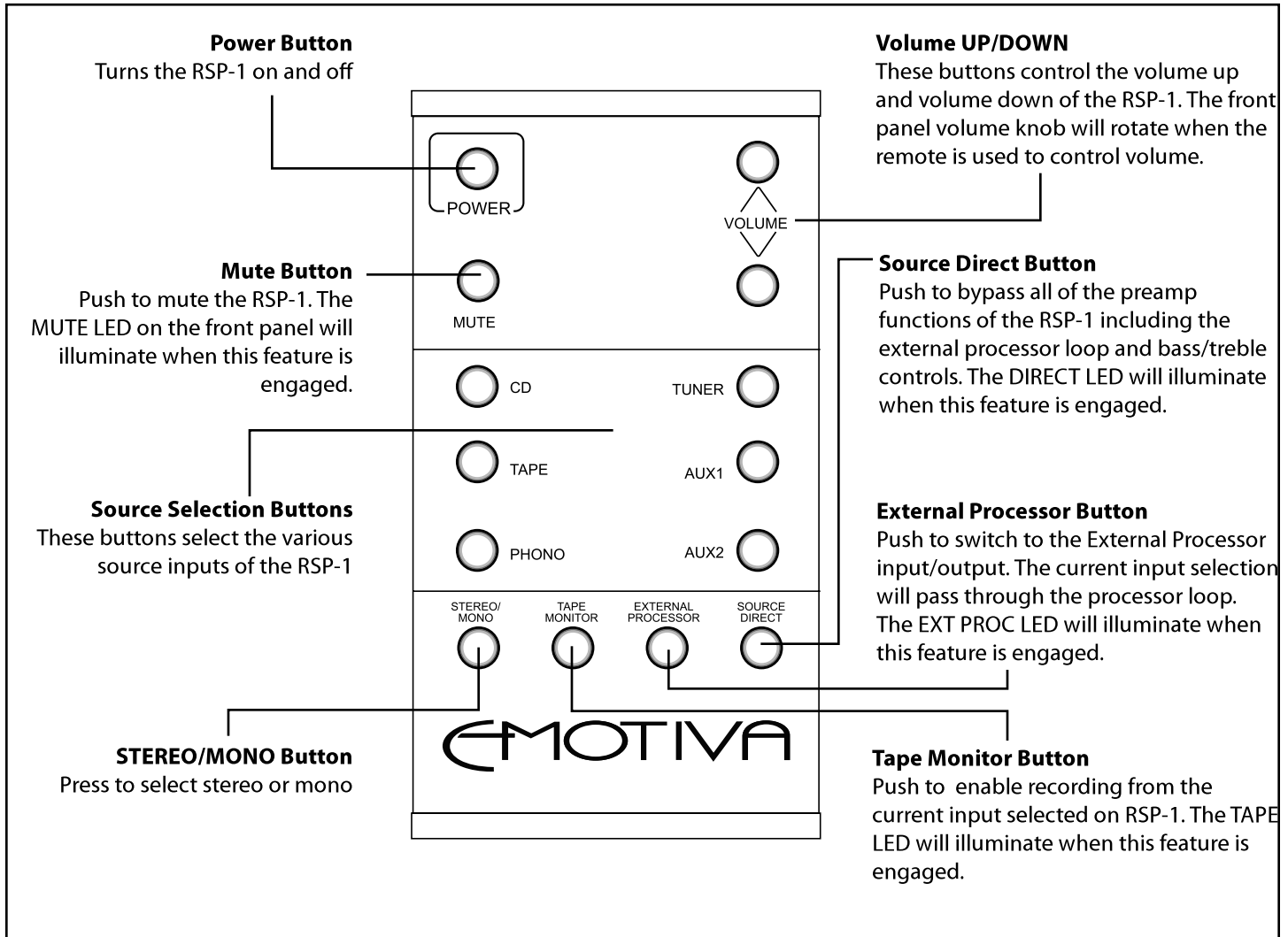
- 1 Ground Connection Post**
This connection is for the ground reference of a turn table
- 2 MM/MC Switch**
Use this switch to select your cartridge type. MM for Moving Magnet or MC for Moving Coil
- 3 Full Range XLR Outputs**
These XLR outputs labeled MAIN are 20Hz-20kHz full range outputs unaffected by the HPF or LPF switches.
- 4 High Pass XLR Outputs**
These XLR outputs labeled HIGH PASS are controlled by the HPF switch. They are always high pass and the filter slope is 12dB/Octave. Filter frequency point is either 80 or 120Hz
- 5 Sub XLR Output**
This XLR output labeled SUB OUTPUT is controlled by the LPF switch. It is only a low pass if the switch is in either the 80 or 120Hz setting. In BYPASS mode it operates without a low pass filter. The LPF filter slope is 12dB/Octave.
- 6 HPF and LPF Switches**
These switches control the condition of the HIGH PASS outputs and the SUB OUTPUT on either RCA or XLR outputs. When the LPF switch is in the BYPASS position, the SUB OUTPUT is full range, but is intended to utilize a built in crossover in a powered sub to which it will connect. All other settings are as labeled (80Hz or 120Hz). Slope is fixed at 12dB/Octave for all filters.
- 7 On Board Fuse / Line Switch**
T2AL for 120 V use or T1AL for 230 V use. Switch selects line voltage.



- 8 Analog Source Inputs**
This group of five analog RCA inputs is intended for any the inputs to RSP-1. There are no digital inputs on this preamp for the purest analog sound reproduction.
- 9 Tape Loop**
A Tape loop is provided for recording 2-channel source material from a Cassette, DAT, or a Hard Disk Audio device with analog outputs.
- 10 External Processor Loop**
An external processor can be added to RSP-1 for signal enhancement. This would commonly be an EQ, but can really be anything that processes 2-channel signal.
- 11 Full Range RCA Outputs**
These RCA outputs labeled MAIN are 20Hz-20kHz full range outputs unaffected by the HPF or LPF switches.
- 12 High Pass RCA Outputs**
These RCA outputs labeled HIGH PASS are controlled by the HPF switch. They are always high pass and the filter slope is 12dB/Octave. Filter frequency point is either 80 or 120Hz
- 13 Sub RCA Output**
This RCA output labeled SUB OUTPUT is controlled by the LPF switch. It is only a low pass if the switch is in either the 80 or 120Hz setting. In BYPASS mode it operates without a low pass filter. The LPF filter slope is 12dB/Octave.
- 14 Trigger Output**
This 1/8" jack is intended for connection to one or more devices that need to be turned on with the RSP-1. Current is limited to 500mA.
- 15 I/R Input and Output**
These 1/8" jacks are intended for use in custom installation applications where control of the RSP-1 from a remote location is desired. These accept standard I/R control equipment from companies such as Xantech. Sensors and connectors are not included.
- 16 Power Receptacle and Switch**
IEC standard Class 1 power receptacle (cord is also included with RSP-1) and a master power switch. Leave in the ON position to switch on via front panel or remote.

RSP-1 Remote

The RSP-1 remote control is a dedicated remote control that offers many discrete buttons for most of the critical RSP-1 controls.



As many home entertainment enthusiasts choose, you may elect to program the RSP-1 remote into a "learning" type remote that is the single (Master) control for all of your home entertainment components. In doing so, you can choose to include or omit certain functions if you wish so you do not inadvertently enter into those functions during normal use with the master remote. A master remote can also provide a unified turn on/off resource for all of the components in the system through the use of a macro program sequence.

Changing the Battery

The RSP-1 remote contains a CR2032 battery that is pre-installed at the factory. If you should ever need to replace this, simply remove 4 screws holding on the back cover, lift off the cover, and there you will see the battery. Pay attention to polarity orientation when removing so that you position the new battery correctly.

Stereo or 2.1, What's the Difference?

The RSP-1 preamplifier features stereo outputs, however these can be further considered in two distinct applications: Full Range Stereo or "2.1". Of course which applies to you and your own system is determined upon the configuration your audio system's discrete amplifier channels and your loudspeaker system. Since home audio systems have changed over time, the criteria for which type of speakers you choose has become a trade off between cosmetics, cost, and performance. What's more, widespread use of portable media players such as Apple iPod, Microsoft Zune, etc. change the bandwidth requirements for many systems because of compression.

Traditional Full Range Stereo

Traditional 2-channel listeners will typically opt to use the full range outputs which are then fed into discrete amplifiers and on to speakers intended to reproduce the full audio spectrum of 20-20KHz. Whether they be tower speakers, in walls, or other configurations, the application is for speakers that will be 2-way, 3-way, or higher and will have a robust low frequency driver intended to handle the low frequencies while the remaining drivers in the speaker handle the higher frequencies.

2.1 Configuration

The trend of many home audio systems is to employ the use of compact, less obvious loudspeaker systems that sometimes severely limit their low frequency capabilities. Whereas traditional home theater systems commonly use a dedicated subwoofer with smaller satellite speakers, the 2-channel listening experience has, until recently, still hinged on the "2 large speakers" paradigm. The satellite/subwoofer speaker system (aka 2.1) architecture is an excellent approach for many listening rooms where furniture or the aesthetics of less obtrusive speakers often prevail. Consequently, the 2.1 architecture built in to the Emotiva RSP-1 is ideal for both large full range monitors (as a biamped speaker) as well as component speakers having a smaller woofer/tweeter combination (even if no subwoofer is used). Of course in either case, a high performance powered subwoofer creates even more breathtaking effects. Whatever the configuration, utilizing the high pass/low pass architecture of the RSP-1 requires discrete amplifier channels for each output.

Is it the same as 5.1?

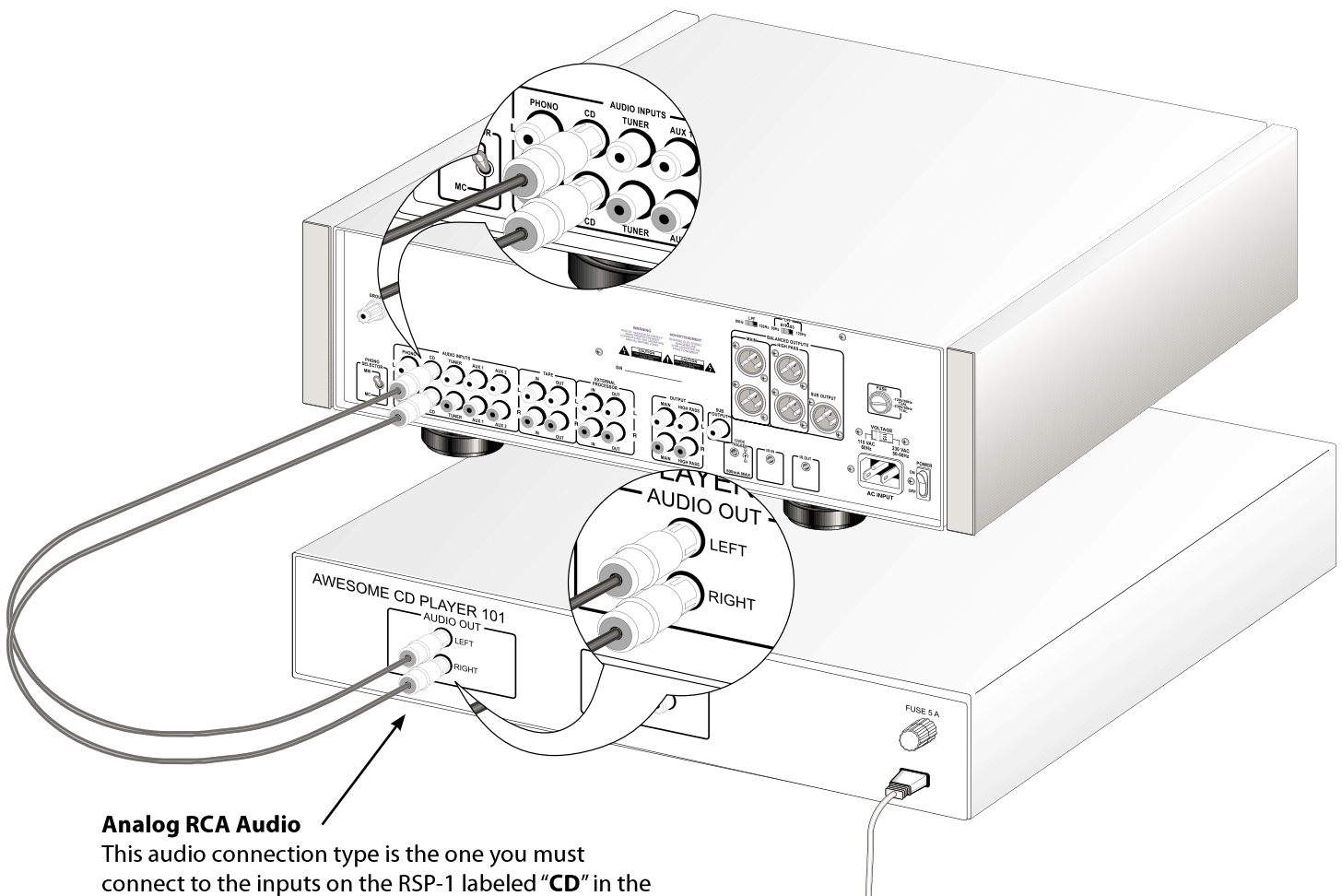
The brief answer is NO, but with some qualification. The term "2.1" was not created from an encoding process such as 5.1, rather the term describes the fact that the RSP-1 offers two high frequency channels and an independently summed mono low pass channel (what Emotiva engineers deemed the .1 channel). Of course in an actual .1 channel such as in Dolby Digital or DTS processing, the .1 channel is actually a processed Low Frequency Effects channel that has both frequency and amplitude controlled information that is intended for a subwoofer. In an LFE application, the subwoofer output is also able to redirect bass frequencies that would normally be intended for front speakers but that (due to size and/or processor configurations) may be unable to reproduce those frequencies. The subwoofer output of the RSP-1 is not processed in any way other than it utilizes a low pass filter selectable between 80 or 120 Hz. Independently of the low pass output, the high pass output can also be limited to play down to 120 or 80Hz offering protection to smaller mid-woofers unable to reproduce low bass.

Connection Diagrams

Connecting Audio Source Units

Connection of a CD Player

This connection diagram shows a CD player connected to the RSP-1 preamplifier via RCA outputs. Although your CD player may contain digital outputs, all signal processing of this preamplifier is done in the analog domain where music purists agree it is most true to the original content. The D/A converter in the CD player is the only link between digital content and analog signal.

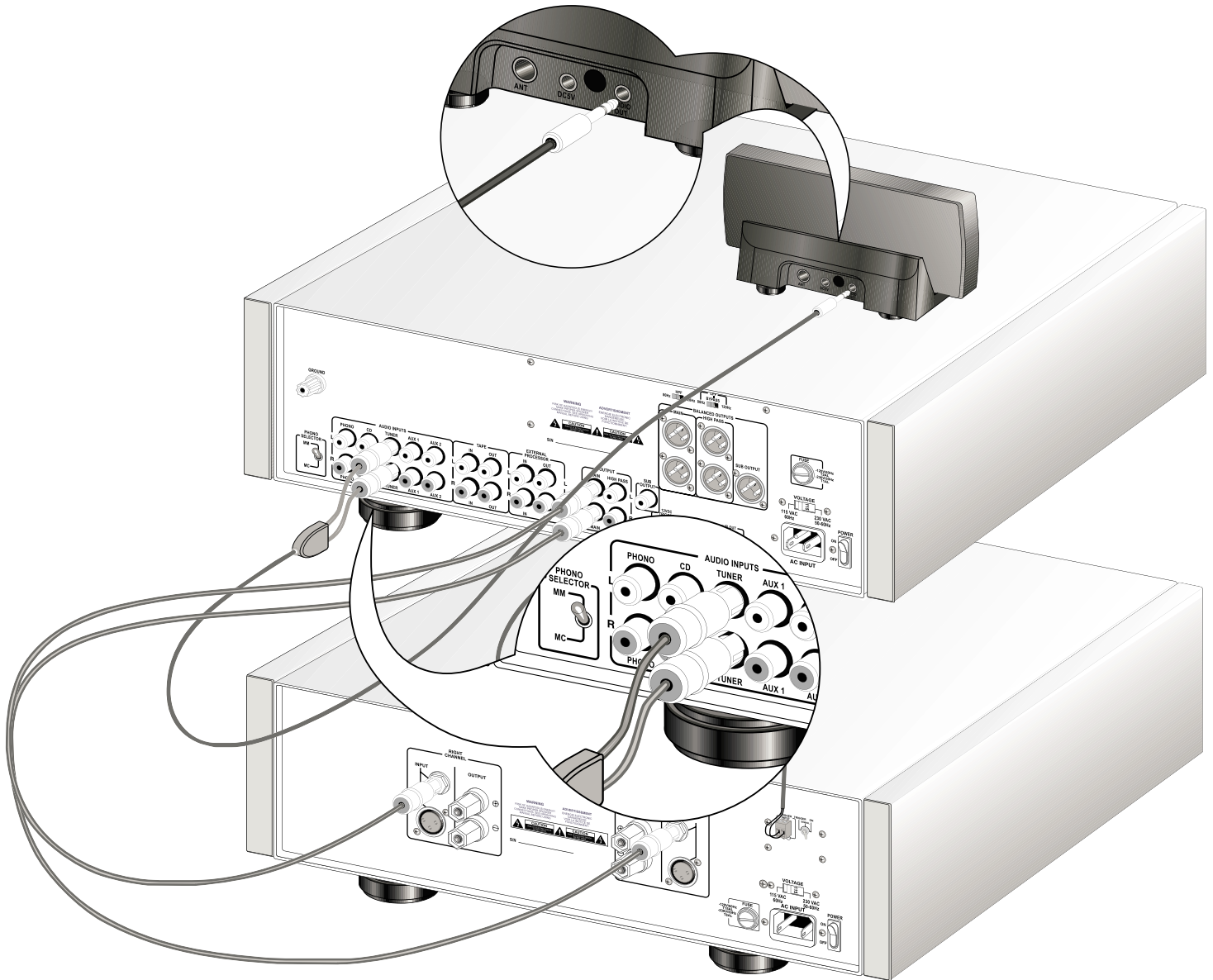


Analog RCA Audio

This audio connection type is the one you must connect to the inputs on the RSP-1 labeled "CD" in the AUDIO INPUTS section of the rear panel. There are no digital inputs on the RSP-1.

Connection of an External Tuner

This connection diagram shows an external tuner connected to the RSP-1 preamplifier via RCA outputs. Depending on the type of tuner you choose, direct RCA outputs may not be available (such as with portable satellite radio tuners intended to go between home and car), so a 1/8" stereo mini jack to RCA adapter may be necessary to complete the connection.



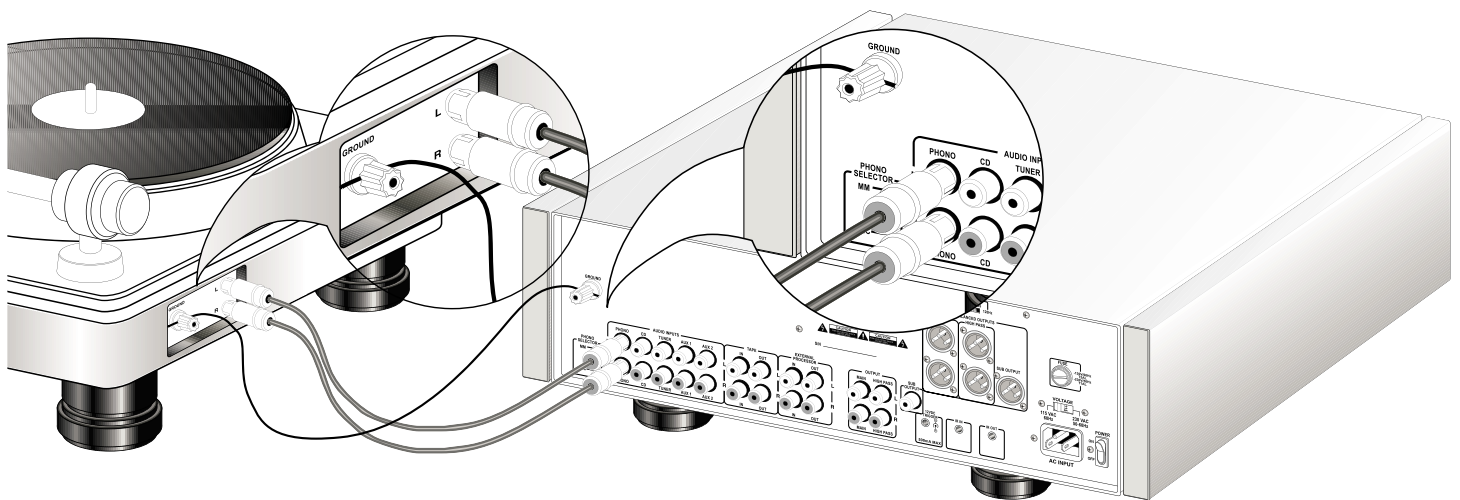
Analog Audio Connection

Connect to the inputs on the RSP-1 labeled “**TUNER**” in the AUDIO INPUTS section of the rear panel. If you are connecting a portable satellite radio or HD tuner device, it **may** require a 1/8" stereo to RCA adapter.

Connection of a Turntable

This connection diagram shows a turntable connected to the RSP-1 preamplifier via RCA outputs. Please also note the connection of the chassis ground tab between the turntable and preamplifier. This is necessary for audio signal reference so the RSP-1 processes signal from the turntable with minimal unwanted noise.

On the back of the RSP-1 preamplifier there is a selector switch labeled MM/MC. This represents "Moving Magnet" or "Moving Coil" cartridges. Please engage the switch in the correct position based on the type of cartridge your turntable has.

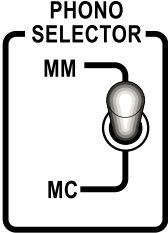


Phono Inputs

This audio connection type is the one you must connect to the inputs on the RSP-1 labeled "PHONO" in the AUDIO INPUTS section of the rear panel. You must also connect the ground post.

**PHONO
SELECTOR**


MM



MC

Please note - for the PHONO connection, you must select the type of cartridge, either high output Moving Magnet (MM) or low output Moving Coil (MC) by moving the switch to the appropriate position.

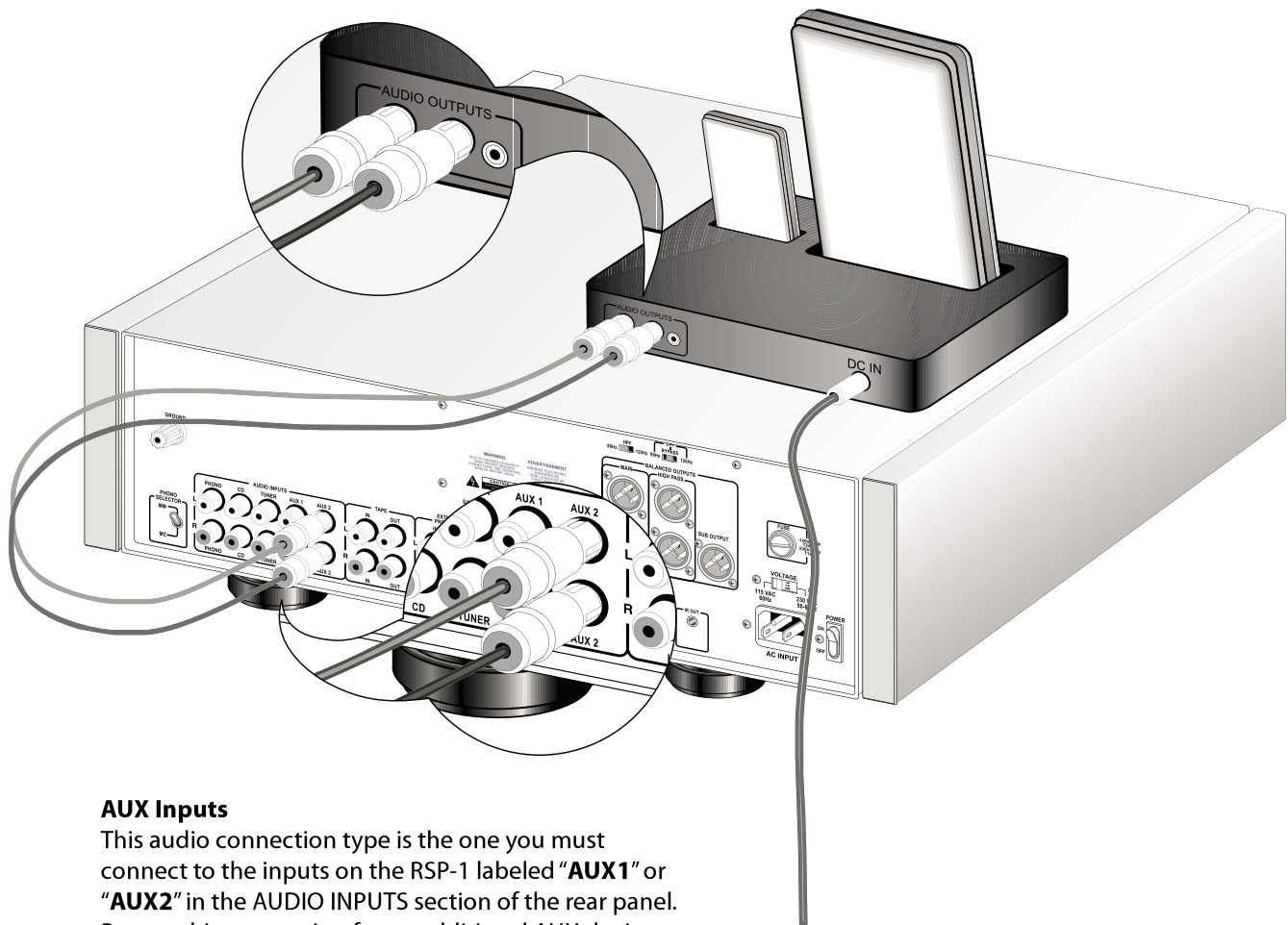
If you are not sure which type of cartridge you have, select MM first and then if the noise level is too high, try selecting MC instead.



*The PHONO input is not designed for line level sources such as CD players or other devices. Please **only** connect turntables with Moving Magnet or Moving Coil needle cartridges to this input to avoid damage.*

Connection of a 2 Channel AUX device (DVD-A, SACD, iPod, etc)

This connection diagram shows an external AUX device connected to the RSP-1 preamplifier via RCA outputs. In this case, the AUX device is a portable compressed media player (such as an iPod) in a docking station. Depending on the type of media player docking station available, direct RCA outputs may not be available, so a 1/8" stereo mini jack to RCA adapter may be necessary to complete the connection.



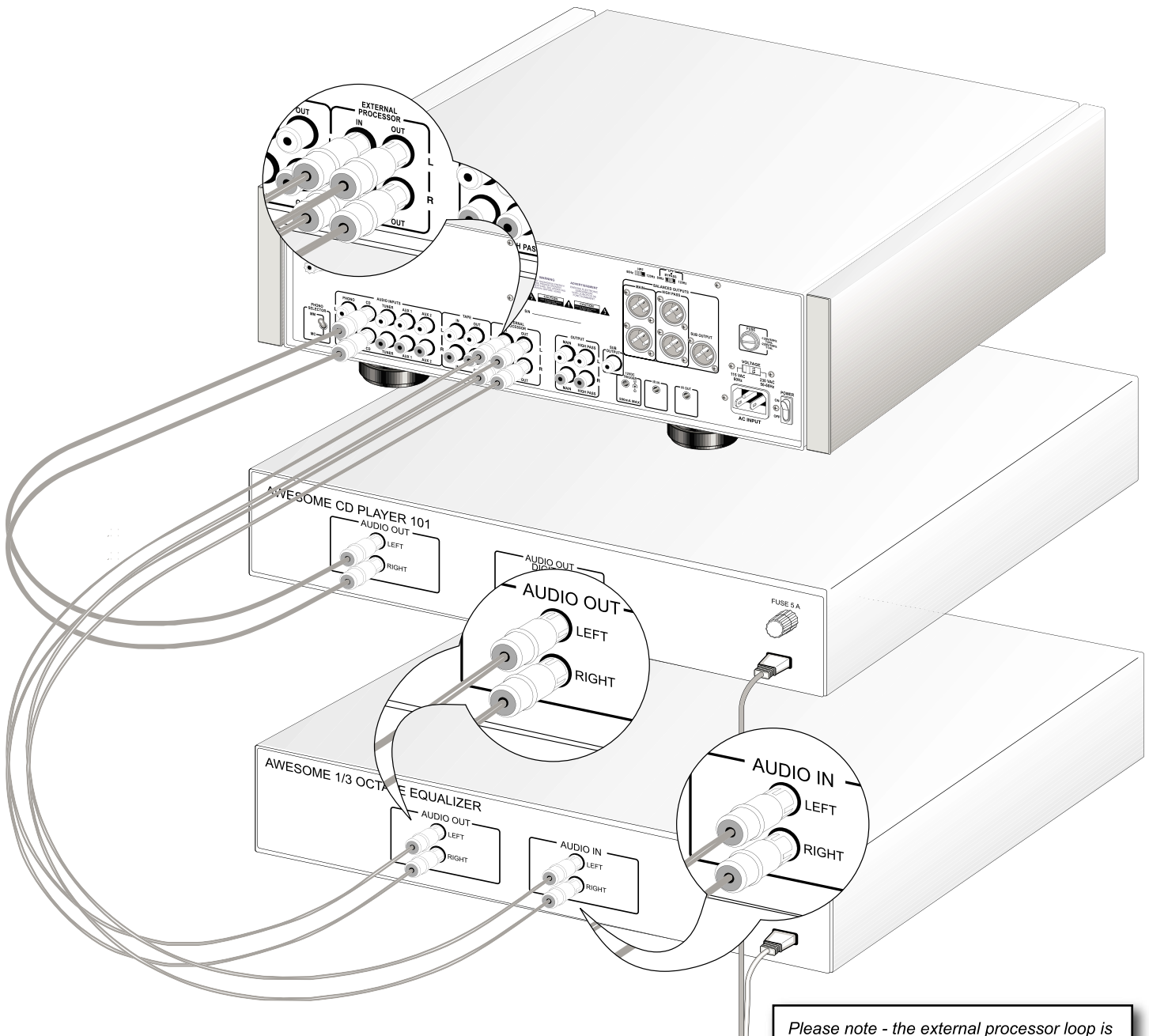
AUX Inputs

This audio connection type is the one you must connect to the inputs on the RSP-1 labeled "AUX1" or "AUX2" in the AUDIO INPUTS section of the rear panel. Repeat this connection for an additional AUX device on the unused AUX input jacks.

Connecting I/O Devices

Connection of an External Signal Processor

This connection diagram shows an external signal processor connected to the RSP-1 preamplifier via RCA outputs and inputs. To engage the processor loop, select the EXT PROC button on the front panel or on the remote control.



Inputs AND Outputs

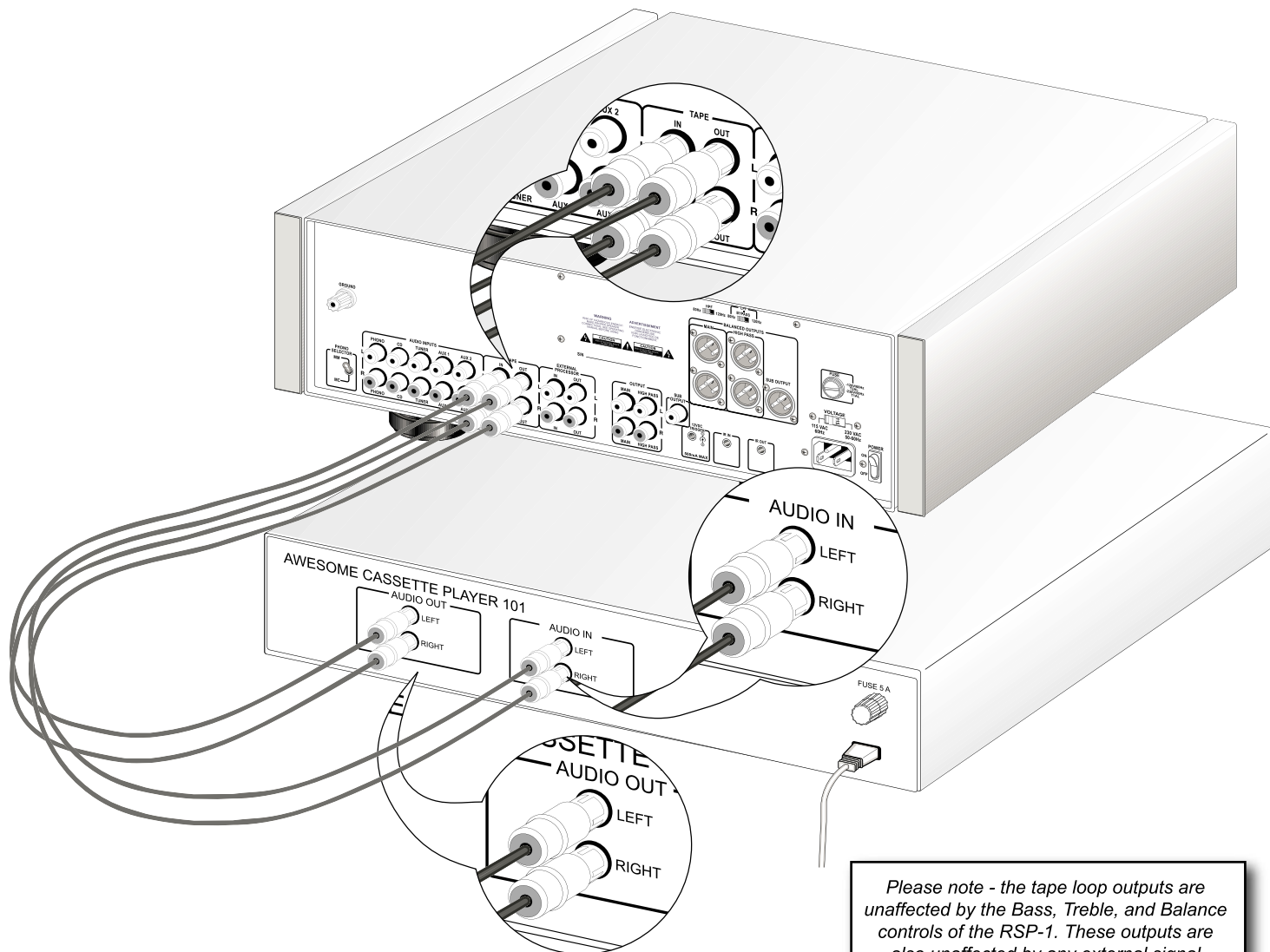
To enable the preamplifier loop you must connect to the inputs AND outputs on the RSP-1 labeled "EXT PROC" on the rear panel. To engage the processor loop, select EXT PROC from the RSP-1 front panel or the remote.

Please note - the external processor loop is unaffected by the Bass, Treble, and Balance controls of the RSP-1. Use caution when boosting any signal processor levels so you can avoid unnecessary distortion.

Connection of a Recorder (Cassette, DAT, HD, etc.)

This connection diagram shows an external recording device connected to the RSP-1 preamplifier via RCA outputs and inputs. While this traditionally has been a cassette player or DAT player, this connection could also be a hard drive based recording device so long as the input and output connections are analog RCA audio connections.

To engage the recording device, first press TAPE from the front panel or remote and then it will allow you to "monitor" the audio that the recording device will record. When you are ready to record, engage the recording device.



Please note - the tape loop outputs are unaffected by the Bass, Treble, and Balance controls of the RSP-1. These outputs are also unaffected by any external signal processing.

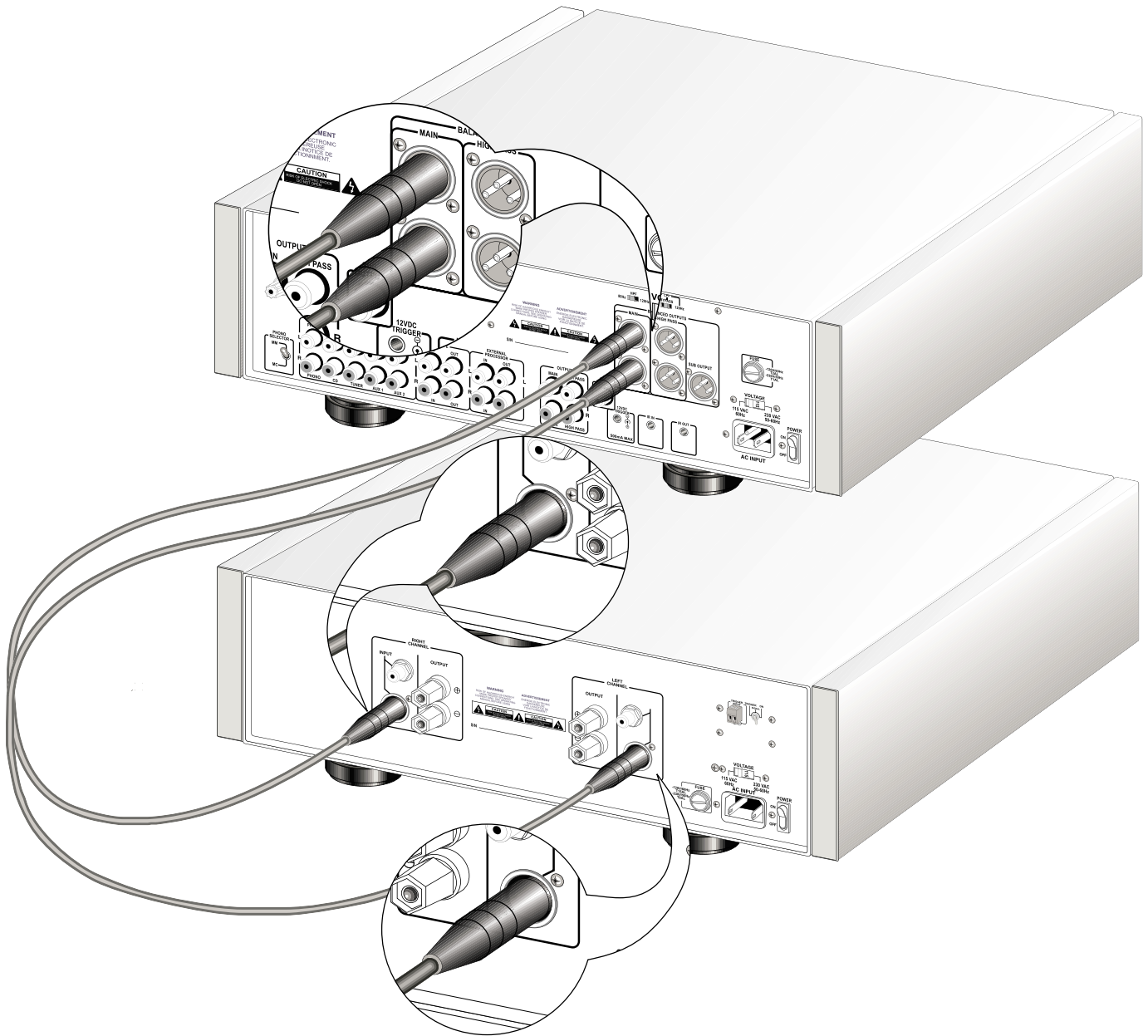
Inputs AND Outputs

To enable the tape monitor loop you must connect to the inputs AND outputs on the RSP-1 labeled "TAPE" on the rear panel. To engage the tape monitor loop, select TAPE from the RSP-1 front panel or the remote.

Connecting Amplifiers

Connection of a Full Range Amplifier (via XLR)

This connection diagram shows a single 2 channel amplifier connected to the RSP-1 preamplifier via XLR inputs. If the amplifier has XLR inputs, this is the preferred connection.

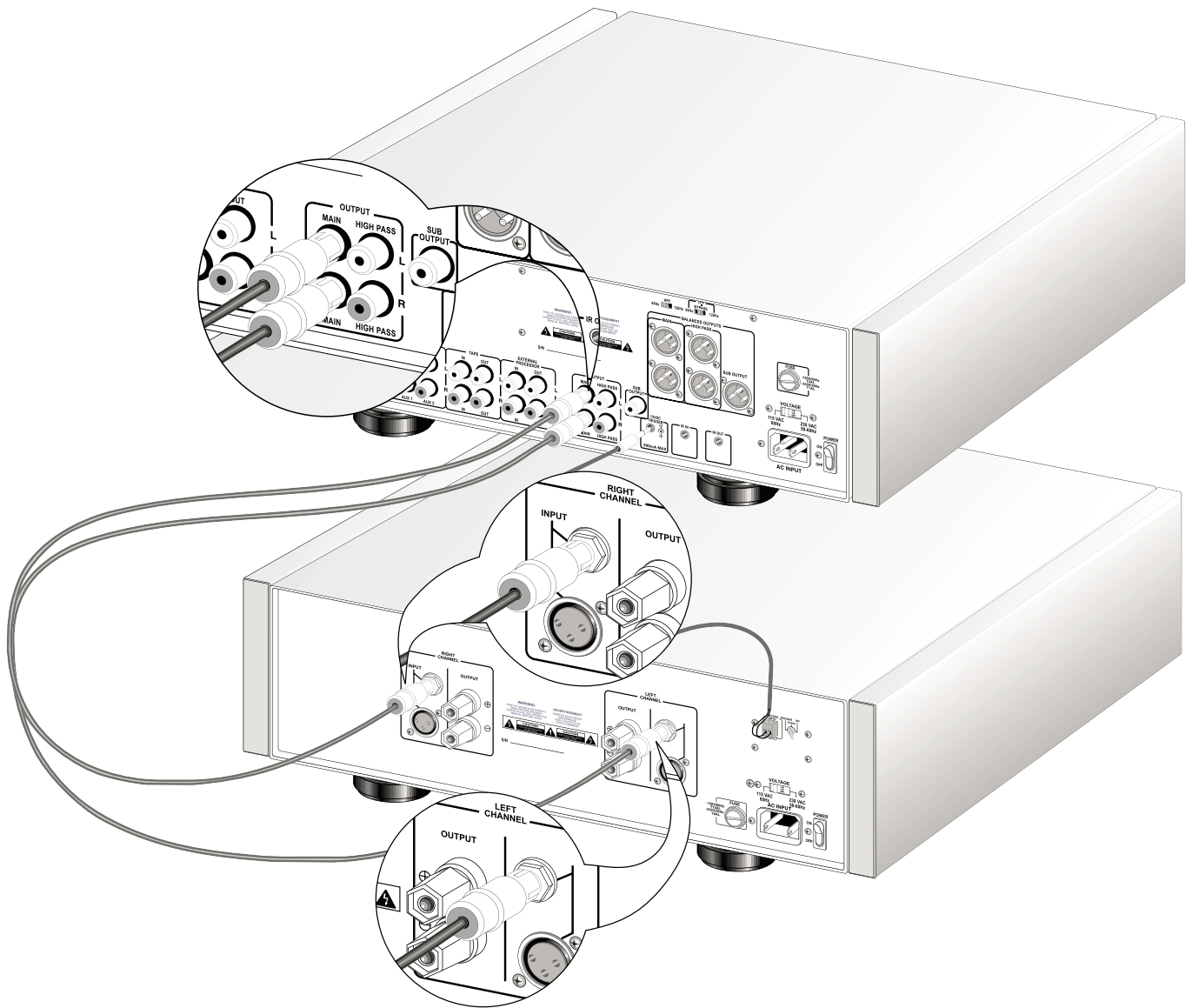


XLR Outputs

If the amplifier has XLR inputs, this is the preferred method of connection from RSP-1.

Connection of a Full Range Amplifier (via RCA)

This connection diagram shows a single 2 channel amplifier connected to the RSP-1 preamplifier via RCA inputs. If your amplifier does not have XLR inputs, this will be your default connection choice.



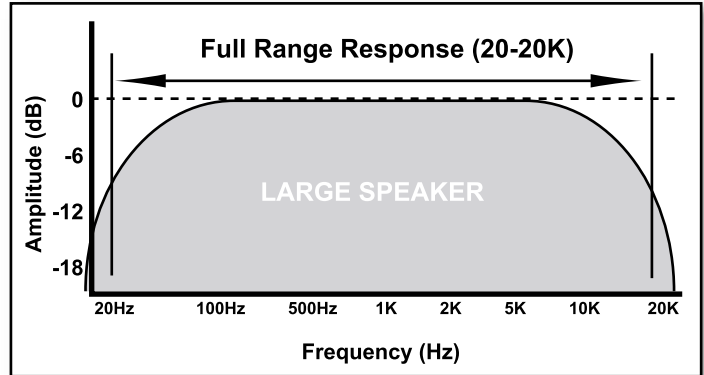
RCA Outputs

If the amplifier does not have XLR inputs, use the RCA outputs of RSP-1.

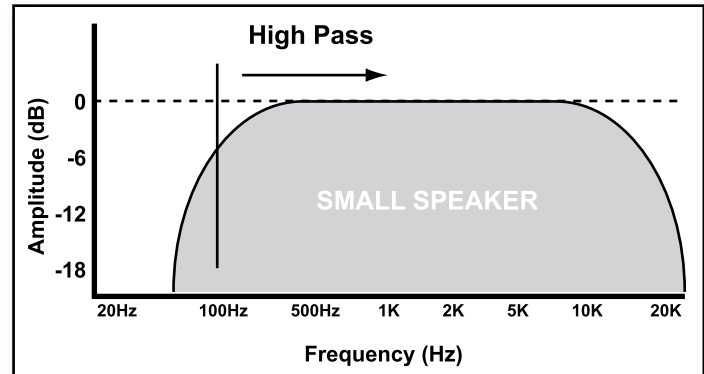
Utilizing the Built In Active Filters

The RSP-1 contains both high pass and low pass filters to further enhance the applications under which the RSP-1 preamplifier can perform. Since many modern loudspeakers have become smaller and more “furniture friendly”, they are not always capable of the 20-20kHz full range, high volume output that traditional 3 or 4 way tower speakers are. Likewise, the advent of separate and multiple subwoofers to reinforce the low frequencies sometimes deficient in more open listening spaces also creates a need for filters on board the RSP-1 preamplifier.

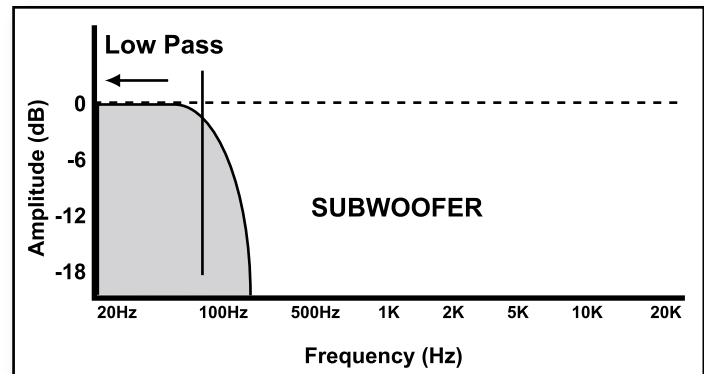
Both the XLR and RCA full range outputs are 20-20kHz outputs and are unaffected by the selectable HP and LP filters. These outputs would commonly be used if only one main pair of full range of speakers are connected or if a subwoofer is connected but principally to reinforce full range speakers.



The high pass section of the RSP-1 is selectable at **80** or **120Hz** by the **HPF switch**. Slopes are 12dB/octave. This filtering is available on the “HIGH PASS” outputs, either RCA or XLR.

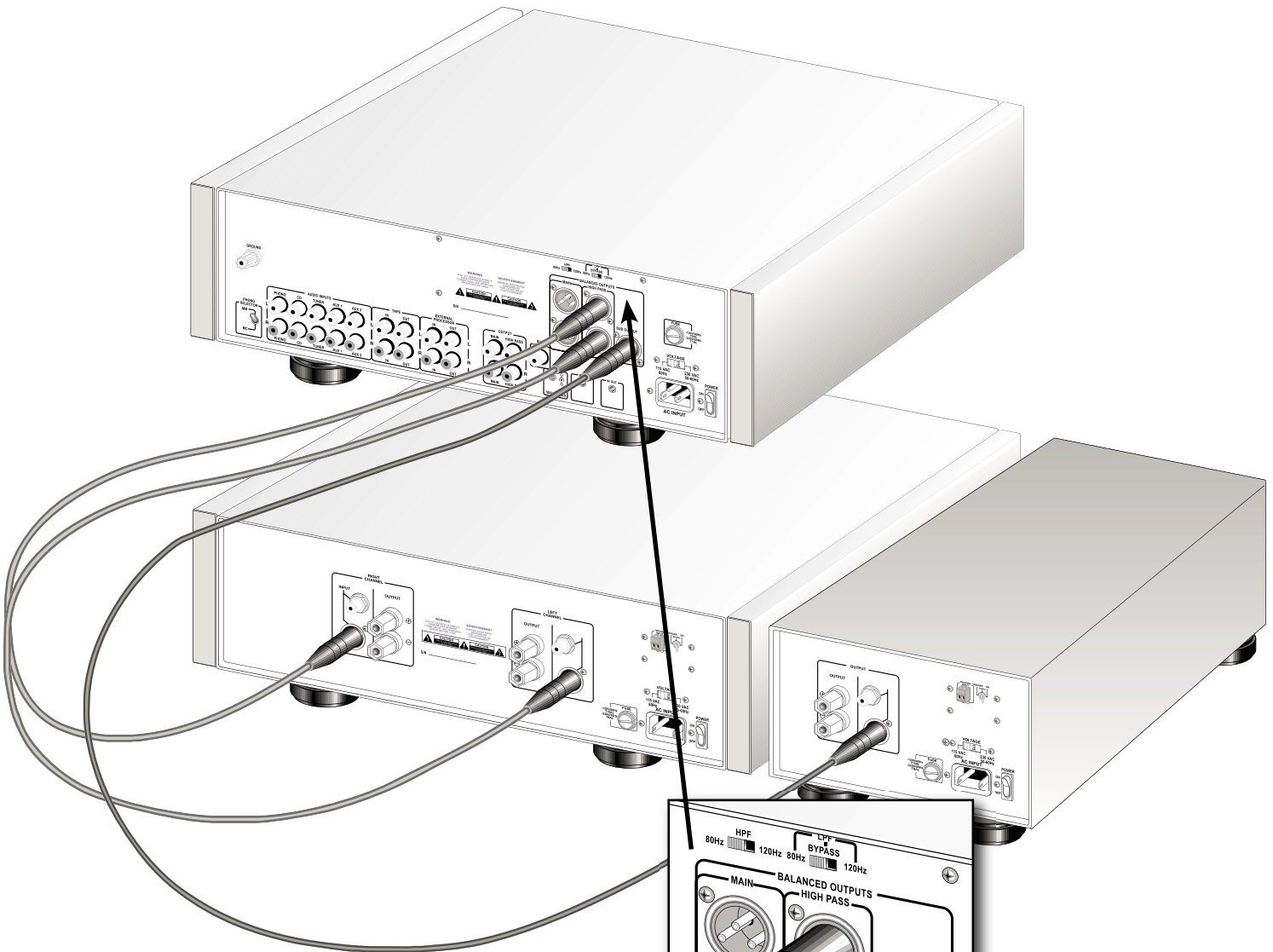


The low pass section of the RSP-1 is selectable at **80** or **120Hz** by the **LPF switch**. Slopes are 12dB/octave. This filtering is available on the “SUB OUTPUT” plug, either RCA or XLR.



Connection of High Pass and Low Pass Amplifiers (via XLR)

This connection diagram shows two separate amplifiers connected to the RSP-1 preamplifier, both utilizing XLR inputs. One amplifier connects to what would play either full range or high pass signals. The other amplifier connects to a low pass signal intended for a subwoofer. This allows the system operation to be in a “biamped” mode where the same speakers in the tower have discrete amplification for high pass and low pass sections. This configuration also allows for a “2.1” mode where the addition of a non powered subwoofer (or multiple subwoofers placed throughout the room) takes some of the work load off of the main speakers.

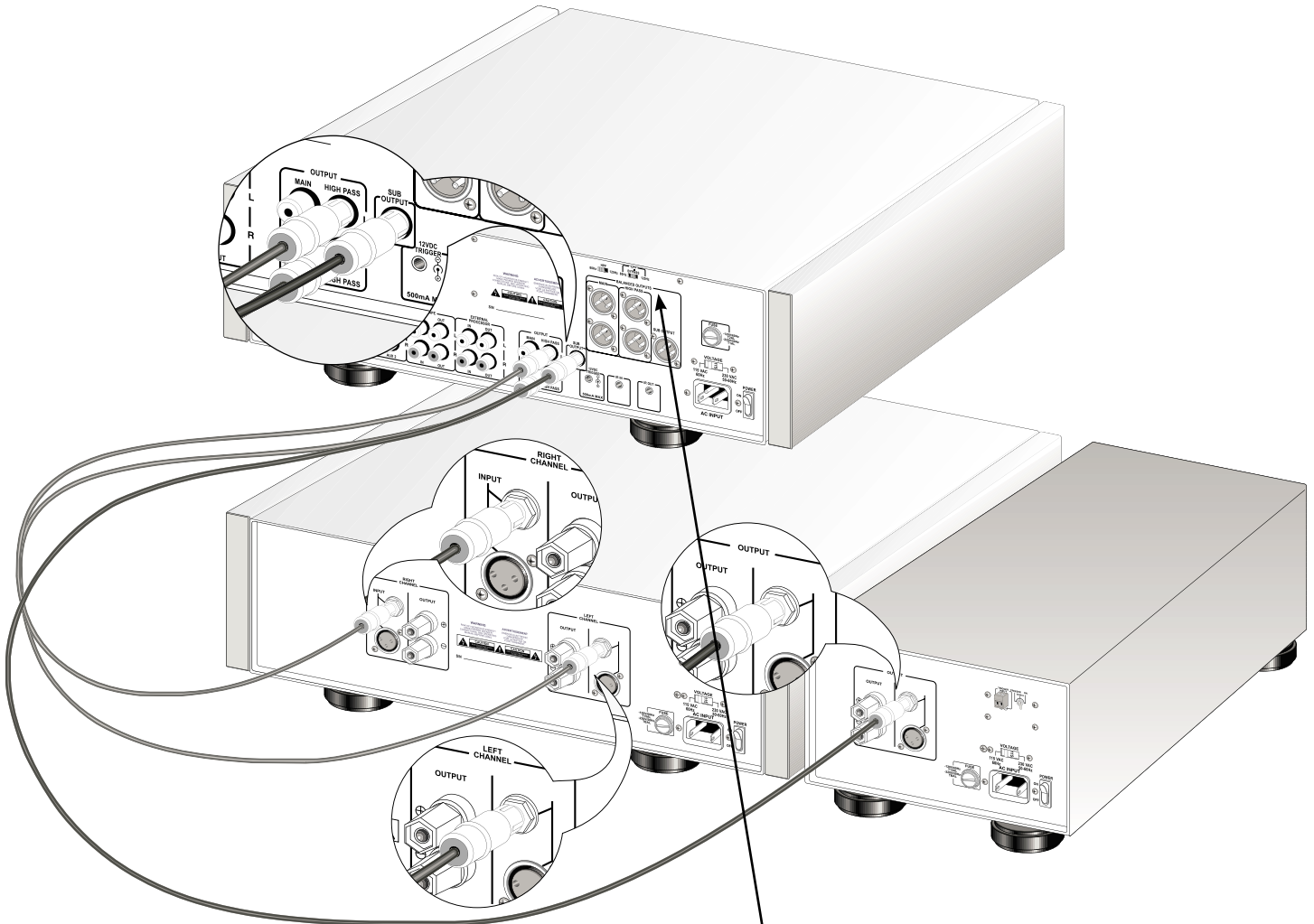


Set the High Pass and Low Pass Filters

Be sure to set the high and low pass filters appropriately. If the amplifier has no built in crossover, make sure you do not leave the LPF in bypass mode, otherwise there will be no LPF engaged. Emotiva recommends starting both filters at 80Hz and then adjusting to taste.

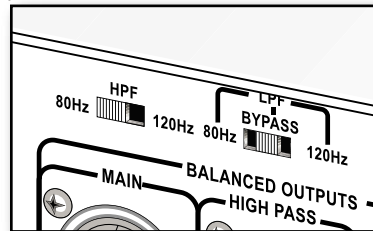
Connection of High Pass and Low Pass Amplifiers (via RCA)

This connection diagram shows two separate amplifiers connected to the RSP-1 preamplifier, both utilizing RCA inputs. One amplifier connects to what would play either full range or high pass signals. The other amplifier connects to a low pass signal intended for a subwoofer. This allows the system operation to be in a “biamped” mode where the same speakers in the tower have discrete amplification for high pass and low pass sections. This configuration also allows for a “2.1” mode where the addition of a non powered subwoofer (or multiple subwoofers placed throughout the room) takes some of the work load off of the main speakers.



Set the High Pass and Low Pass Filters

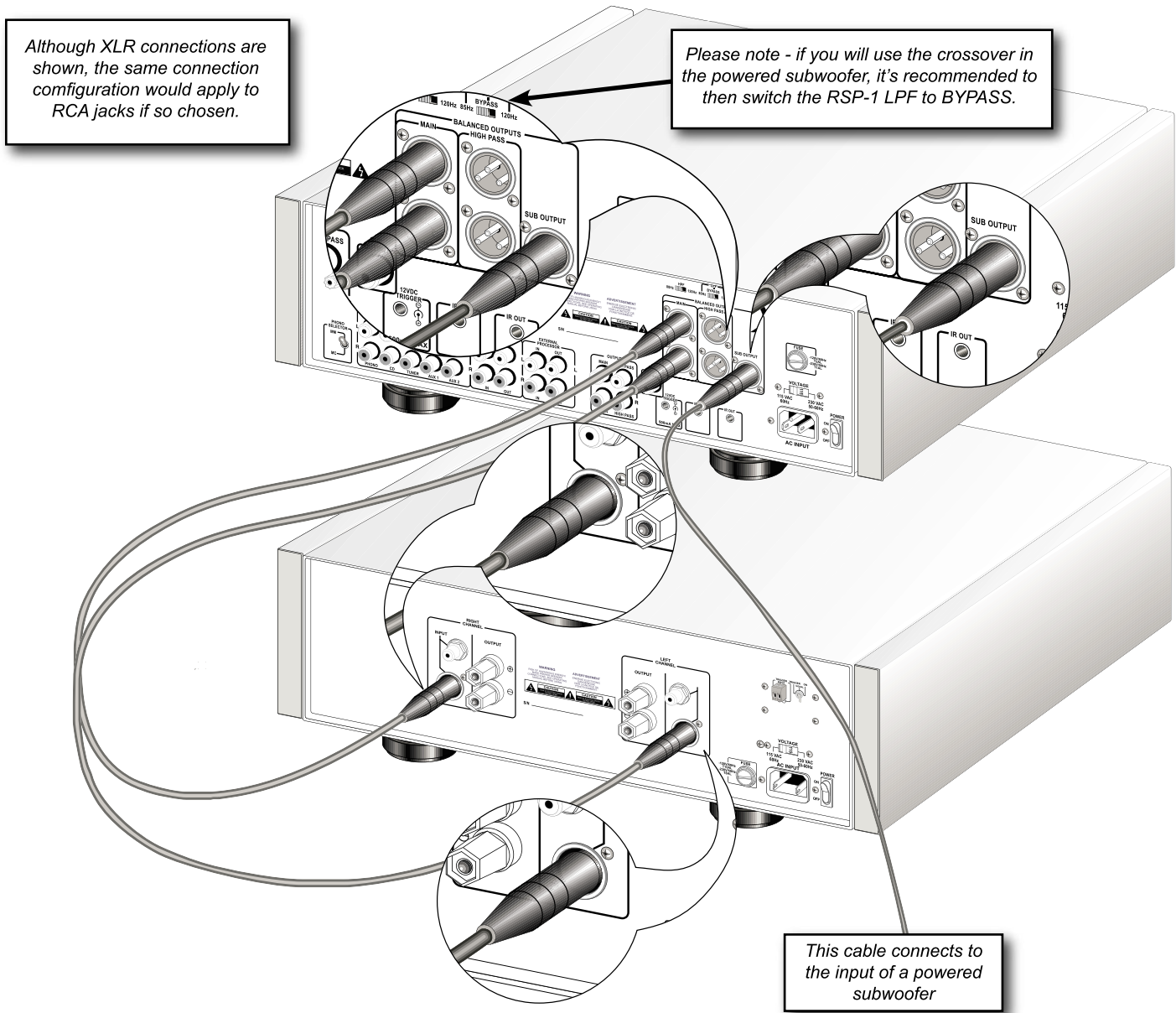
Be sure to set the high and low pass filters appropriately. If the amplifier has a built in crossover and you intend to use that one, make sure you leave the LPF in bypass mode, otherwise there cascading LP filters in play. If you do use the LPF in RSP-1, Emotiva recommends starting both HP and LP filters at 80Hz and then adjusting to taste.



Connecting a Powered Subwoofer

When connecting a powered subwoofer in a traditional "2.1" configuration, the main difference is that the built in amplifier of the powered subwoofer commonly has a variable on-board low pass filter. It is up to you which filter you choose (either the one built into the RSP-1 or the one on the powered subwoofer), but **USE ONLY ONE** of the low pass filters. Not knowing what the exact set point of the filter on the subwoofer is or if the slope is identical, it would be unlikely that you could align the filters by ear and the results would then be somewhat unpredictable.

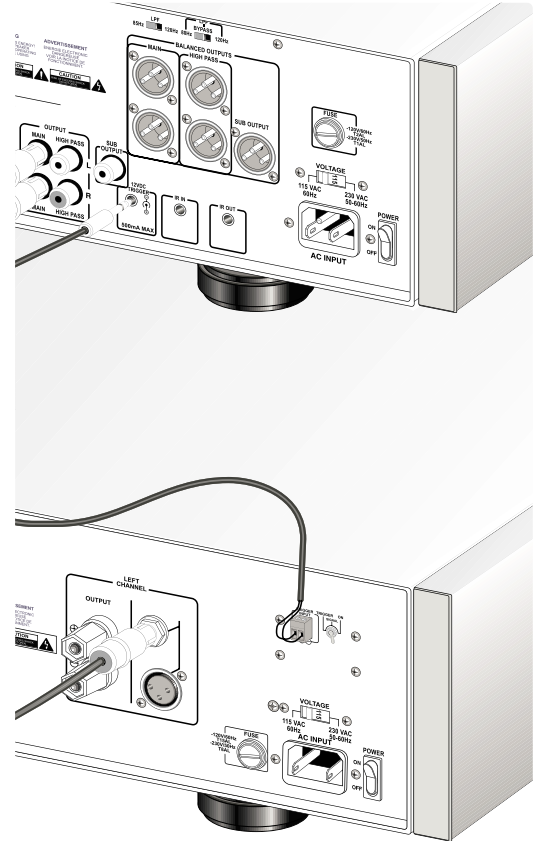
Emotiva's suggestion is to use the low pass filter in the powered subwoofer if it is variable because you have a little more control over the actual filter point. In that configuration be sure to select the **BYPASS** mode on the LPF switch. For additional suggestions on utilizing a subwoofer (or multiple subwoofers) in your listening room, see the **Speaker Placement Tips** section of this manual.



Additional Connections

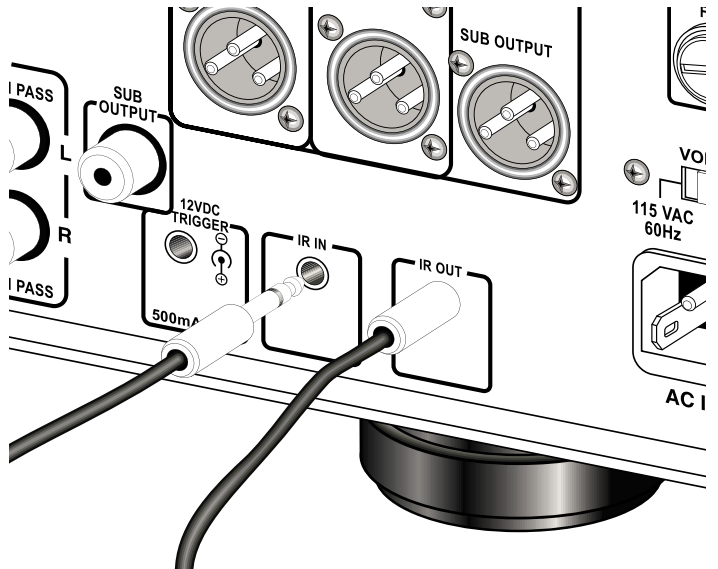
Trigger Connections

This diagram shows the 12VDC trigger connections out of the RSP-1 preamplifier. The connection is a direct plug in to the companion Emotiva RPA-1 amplifier, however if using another type of amplifier or splitting the signal for multiple amplifiers, the center pin is positive and the outer shield is negative. Please ensure that the total of the loads connected to this trigger do not exceed 500mA.



I/R Connections

This diagram shows the input and output connections of the infrared commanders. This is intended for installation situations in which the RSP-1 will be installed away from view and needs to be controlled through the use of standardized I/R equipment such as Xantech. Cables and I/R receivers not included with the RSP-1.



Quick Setup of the RSP-1

Setting up your RSP-1 preamplifier is really very straightforward. All of the operations can either be done through the front panel controls or through the dedicated remote.

A Note About “Learning” Remotes

As many home entertainment enthusiasts choose, you may elect to program the RSP-1 remote into a “learning” type remote that is the single (Master) control for all of your home entertainment components. In doing so, you can choose to omit certain setup functions if you wish so you do not inadvertently enter into those functions during normal use with the master remote. A master remote can also provide a unified turn on/off resource for all of the components in the system through the use of a macro program sequence.

Step 1 - After the RSP-1 is connected to the source components and the main amplifier(s), connect power to the unit by plugging the power cord. If you have connected a turntable, make sure the **ground post** is connected and the **MM/MC selection switch** is in the correct position for your cartridge type. At this time, be sure that both of your loudspeakers have been connected to their respective amplifier channels with the Emotiva RPA-1 amplifier or equivalent amplifier(s). If you are using a powered subwoofer, also make sure that connection is complete at this time.

Step 2 - If you have chosen to use the **HIGH PASS** or **SUB** outputs, please make sure the **HPF** and **LPF** settings are where you want them. Remember that most powered subwoofers have an on-board crossover so if you are using that crossover, leave the **LPF** in the **BYPASS** position.

Step 3 - Ensure the CR2032 battery is in the RSP-1 remote control and functioning properly. It ships with the battery pre-installed from the factory.

Step 4 - Press the **POWER** button on the front panel of the RSP-1 or on the remote control to power up the unit.

Step 5 - Select any of the **INPUTS** on the RSP-1 remote and (if not already playing) power up and play **that same source component** so you can check to see if your audio connections are correct.

Step 6 - Once you hear audio, check the balance control to ensure that the balance operates to the left and right. Ensure the **MONO** switch is not engaged during this evaluation.

Step 7 - Next check the Bass and Treble controls to ensure that they operate correctly. Ensure the **DIRECT** switch is not engaged during this evaluation.

Step 8 - Next select the other inputs that have been connected (while those sources are playing) to ensure each connected source unit is correctly connected to the RSP-1 on the appropriate input. Check the operation of the balance, bass, and treble on each input.

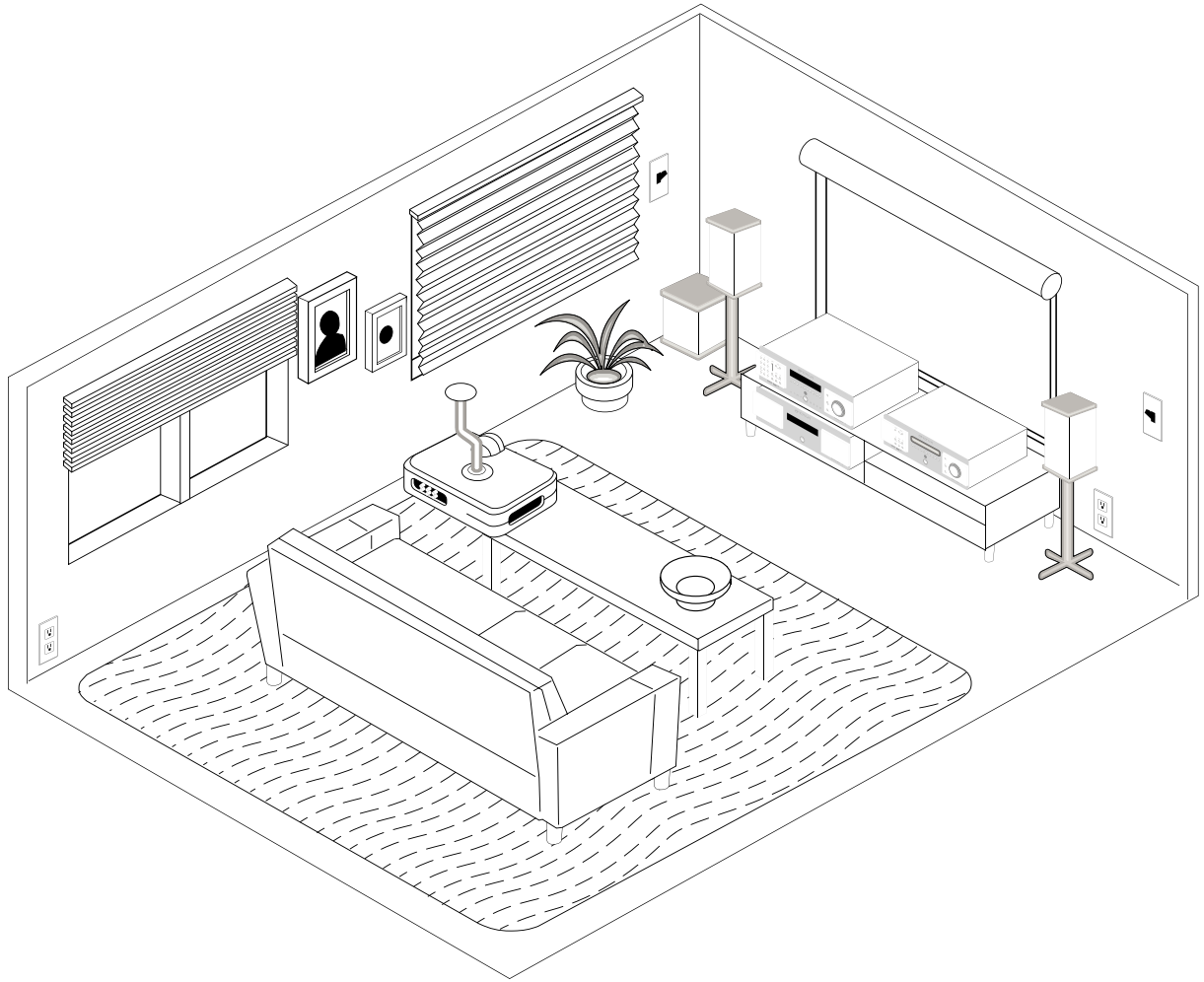
Step 9 - If connected, check the operation of the tape player and/or external signal processor.

Step 10 - With the basic input devices verified, you can now adjust any level control on your amplifier(s) and/or powered subwoofer. If you are using a powered subwoofer, now would also be the time to set any low pass filter and phase controls.

If you have gotten to this point and you are able to hear sound in all speakers, you have most of the work done. If for some reason all speakers are not playing or there is some other problem, please check the troubleshooting section of the manual to narrow down your problems before moving along.

All that's really needed from here is tweaking your speaker positions and the relative levels of each channel if adjustable at the amplifier. Don't forget to position your chair with enough room for a cold beverage and your favorite collection of music.

Speaker Placement Tips



Tips Before Beginning

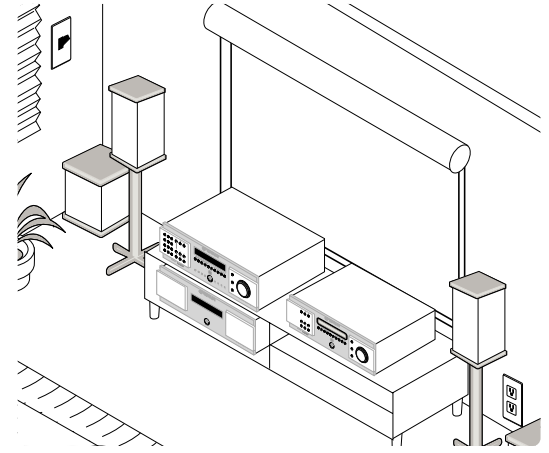
Read this section thoroughly. There are a number of ways in which it may seem aesthetically pleasing to place speakers in a room that will ultimately result in a sound quality compromise. The placement of speakers is equally as important as the room itself. While there may be very little you can do about the room where your system is installed, you can choose placement of speakers within that room to maximize the sound quality of the system. Ultimately, this will give a much better result when you are enjoying your system and your new Emotiva RSP-1.

Overall, the best placement for front speakers is where the sound is directed at ear level. This means that the speakers themselves can be in positions lower (like small floor standing speakers) or higher (like in-wall or in-ceiling speakers) as long as the sound is “pointed” toward the listeners and preferably around ear level. Ideally you will place the speakers so they create an imaginary triangle with the listening position. This is known as the “Stereo Triangle” among audiophiles. A little toe-in of the front speakers sometimes helps the perceived distance between the speakers as more intimate and reinforces a phantom center image. If you are doing a “2.1” system, a subwoofer can also be a little challenging to install depending on the room. In multiple subwoofer installations, the positioning of the woofers to the listener as well as to each other is critical because there can be problems with cancellation if optimum placement is not observed.

The Front Speakers

You should closely follow the placement recommendations of your speaker manufacturer, with the addition of the following points:

- *The left and right front speakers should be positioned so that you are exactly centered between them. This will help create a stable phantom center image*
- *For the best overall imaging, the left speaker should be set exactly the same distance and angle away from your listening position as the right speaker. It is recommended that you use a tape measure to set them up to be the same distance away, within about half an inch tolerance.*



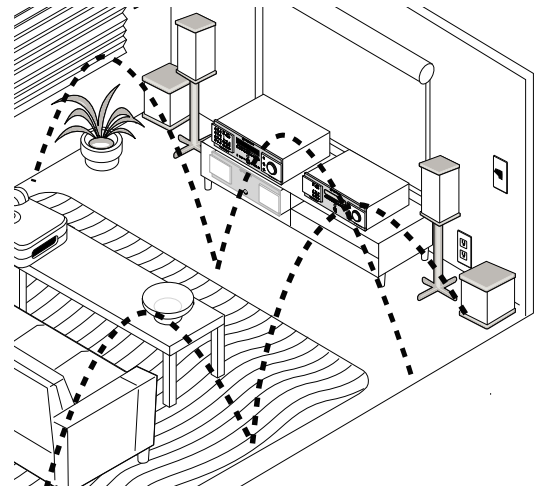
Place LEFT and RIGHT main speakers at equal distances from the listening position as if to create an imaginary triangle between the listening position and the speakers.

Subwoofer Location (for 2.1 Systems)

A subwoofer typically sounds best in a corner with at least 5 feet of wall to either side. Due to the short wavelengths of high-frequency sounds, they don't interact strongly with the size and shape of a room. Lower frequencies long wavelengths that can cause "Standing wave" problems. Placing the subwoofer in a corner usually creates the best possible situation for the sound to interact with the room, allowing even distribution of the bass frequencies. Often the corner that offers nearby placement to the front speakers may yield the best results, but you should try several locations before settling on just one.

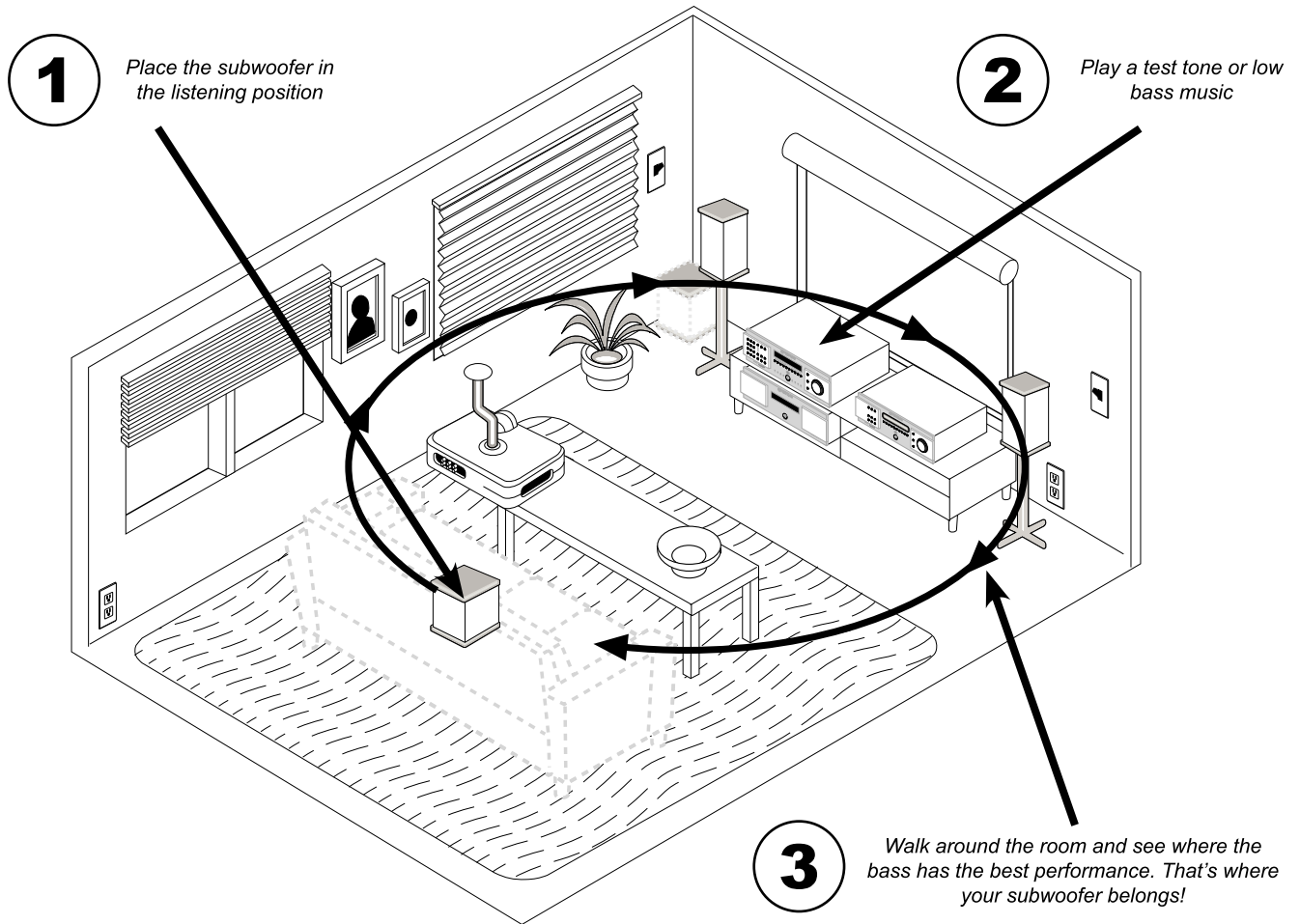
The best location for a single subwoofer can be found by playing a couple of different low frequency test tones (or some music with heavy sustained bass passages) and proceeding with the following easy 1-2-3 process:

1. *Place the subwoofer right on the seat of your couch or listening chair.*
2. *You can then either run the calibration (noise) signal through it, or simply plug the analog outputs of a CD player directly into your subwoofer's low-level inputs. Turn down the subwoofer's volume level before turning on the CD, then play the test tones or some music with heavy sustained bass passages.*
3. *Walk around the room, standing in all the positions where you might be able to place the subwoofer. Again, this is usually near the corners of the room. Try locations fairly close to the front speakers.*



Standing waves depicted in a room. "Peaks" are good, "Dips" are bad.

Notice where in the room the bass output from the subwoofer sounds the loudest. Shut things down and install the subwoofer there. This is the best position for the subwoofer. The bass will sound the best when you are sitting in your normal listening position.



If your subwoofer seems to sound best when it is near the front speakers (often the case), keep in mind that most television sets may not react well to the subwoofer if it is not built specifically for use in a home theater application. While most front Left/Center/Right speakers do have shielding when intended for use in a home theater application, subwoofers are not always magnetically shielded and may damage the television if placed too close. If you want to check if this will be a problem, select an unused video input on the television to bring up a single color screen. If you see any color distortion anywhere on the screen, an unshielded speaker is too close to the screen and should be moved away from the television until the color distortion disappears.

Note - most powered home subwoofers feature a phase control with a range between 0-180 degrees. This is present so that in situations where the optimum location is not particularly desirable, you can locate the subwoofer elsewhere nearby and make a slight adjustment to the phase so that its sound arrives to the listener at the same time as the other speakers. Ideally, sound arriving at the same time is what allows the subwoofer to create the illusion of the main speakers making the bass. This is what enhances the listening experience.

Troubleshooting Guide

The Emotiva RSP-1 is expertly designed and built to provide years of trouble-free performance. Most problems that occur can usually be solved by checking your connections or making sure that the audio and video components connected to the RSP-1 are on and fully operational. The following information will help you deal with common problems you may experience during initial use of your unit. If problems persist, contact your Emotiva Dealer for assistance.

No Sound (from one or more full range speakers)

- *Speaker cables may have come undone from the amplifier. Turn off your system and check the speaker cables, and tighten the binding posts.*
- *Audio output cables that connect RSP-1 to the amplifier(s) may not have a good connection. Turn off your system and check all audio cable connections.*
- *An audio cable may have an internal break. Switch cable with a different channel to see if the problem migrates to a different channel or stays in the affected channel(s).*
- *The correct input is not currently selected.*
- *The mute switch is on.*
- *The outputs on high pass and low pass channels may be accidentally reversed. Check that the correct output feeds the intended amplifier.*
- *External Processor may be selected but not hooked up.*

No Low Frequency (or poor output)

- *The powered subwoofer's amplifier is off or its input level controls are set low.*
- *Adjust the crossover on the subwoofer and/or RSP-1. Generally if you are using the RSP-1 subwoofer output you should leave your powered subwoofer's crossover switched "OFF".*
- *Adjust the physical location of your subwoofer. See pages 30-31 to find the best location for your subwoofer.*

No Tone Control Functions

- *Remember that the tone controls are non-functioning whenever the RSP-1 is in "DIRECT" mode.*
- *Tone controls are bypassed on both the TAPE and EXT PROC outputs.*

Sound Drops Out with CD or DVD Playback

- *Make sure the disc is not dirty or scratched.*
- *Some inexpensive players and changers tend to mistrack more often than you would like.*

Remote Not Working

- *Make sure the CR2032 battery is not dead or installed incorrectly.*
- *Make sure that the RSP-1 front panel receiver window is not obstructed.*
- *If you have programmed the RSP-1 commands into a "learning" type remote, check the user's manual for that particular device for tips on how to correctly program and/or test the remote commands.*

External Amplifier(s) Shut Down (Often or Prematurely)

Check the following:

- Make sure each speaker's average impedance is not less than your amplifiers can safely handle.
- The amplifier(s) have good ventilation, no vents are covered.
- Try setting all the speakers to Small, and let your subwoofers handle the heavy bass.
- Check that the amplifier(s) power output is a good match for your speakers. If your speakers are inefficient, consider using larger power amplifiers.
- Make sure all wiring is correct and there are no shorts. If wires have been run under carpet, under base boards (or along tack strips) there is a possibility they can easily be shorted by sharp edges or something that punctures the insulation. Also, if your wiring is in the walls - make sure that there was not an accidental "staple" puncture from securing wiring to framing studs or wall/floor joists. This evaluation is easily done with an Ohm meter.

External Amplifier(s) Do Not Turn Off with RSP-1

Check the following:

- Make sure the 1/8" plug is connected between RSP-1 and the amplifier(s)
- Make sure the total consumption of the connected devices do not exceed 500mA
- If you have spliced the plug to one or more amplifier turn on inputs, remember the center pin is positive and the outer shield is negative. Voltage on this output is 12VDC.

RSP-1 "Locks Up" (No Response)

- Occasional power fluctuations and spikes may cause the RSP-1 to "lock up" or act strangely.
- Unplug AC power momentarily and press "POWER" to turn back on.

"Hum" Noises

- This problem is more than likely caused by a "ground loop" in your system, rather than a fault in the RSP-1. Follow these steps to isolate the main cause of the hum, there may even be more than one. Remember to turn off all components in your system, including the RSP-1, before disconnecting or connecting any cables.

Disconnect the following items in order, and check each time if the hum has gone away:

- Disconnect all cables which come from outside the room, such as cable TV, satellite TV, or roof top antennas. Make sure that they are disconnected where they first enter the room, so they are making no connection to the RSP-1 or the TV, or any other component. If the hum is caused by the cable TV line, then you will need a "ground loop isolator." This is an inexpensive device fitted in line with the coaxial cable feed. Contact your cable company or your Emotiva Dealer for assistance.
- Disconnect any component which has a grounded power cord.
- If the hum persists, disconnect all the source components one at a time from the back of the RSP-1, until you identify the problem. (Ground loop isolators are available for audio lines and video. Ask your Emotiva Dealer for assistance)
- Try moving the speaker cables away from any power cords. Try just one speaker, connecting it to different channels and see if an amplifier channel is bad.
- If you are still having a problem, remember that Emotiva's dealers and technical support staff will assist you.

Other Probable Causes of Noise

- *Speaker noise may also be caused by interference or noise on your AC line. Make sure there are no large appliances sharing the line, or halogen lamps or light-dimming Triac devices.*
- *Try connecting your system to another AC socket on a separate line.*
- *If the hum is heard from within the RSP-1 and not through the speakers, this may also be caused by interference on the AC or DC lines. The power transformers may turn this interference into an audible noise. Internal hum can be made worse by a shelf or cabinet resonating, so try moving the RSP-1 to another shelf.*
- *Try moving your components further away from the TV, especially if you ever notice the screen has changed color in the area closest to the component.*
- *If you have very high efficiency speakers, these may tend to reveal noises which other speakers do not.*

Problems with the whole A/V System

If you are having more complex problems in your overall home entertainment system (not just with the RSP-1 preamplifier/processor), please contact Emotiva directly for professional installation assistance. These professionals have years of experience with a wide range of home entertainment and lifestyle products and can offer you assistance in troubleshooting and rectifying problems.

RSP-1 Technical Specifications

Preamp Audio Section

Input Sensitivity Line In:	CD, Tuner, AUX, Tape - 125mV for 0.5V output from source unit MC Phono - 125mV for 0.5V output from source unit MM Phono - 125mV for 0.5V output from source unit
Input Impedance Line In:	47K Ohm +/-5%
Signal-to-Noise Ratio (rel 2V out):	97dB
Distortion:	<0.1% 20Hz-20kHz with 80kHz measurement bandwidth
Frequency Response (+/-0.5dB):	20Hz- 20 KHz / 0dB ref
Line Out Freq. Response (-3dB):	20Hz- 20 KHz / 0dB ref (except SUB output, which is 20-120Hz)
Channel Separation @ 1kHz:	>70dB
Tone Control:	Bass = 100Hz +/- 10dB Treble = 10KHz +/- 10dB
Built In Filters:	HP = Selectable 80Hz or 120 Hz @ 12dB/Octave LP = Selectable 80Hz or 120 Hz @ 12dB/Octave, Summed L+R Mono

Other Details

Remote Control:	Infrared in Aluminum Chassis with Soft Touch Buttons. (1) CR2032 Battery.
Trigger Outputs	12 VDC, 3.5mm jack, Center Pin is Positive / Current Load <120mA
Electrical Power Requirement:	115VAC, 60Hz or 230VAC, 50-60Hz User Selectable
Raw Weight:	31.5 lbs / 14.3 kg
Shipping Weight:	41 lbs / 18.6 kg
Dimensions:	19.8" W x 6.5" H x 15.7" D 504mm W x 165mm H x 398mm D

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Limited Warranty

Emotiva is proud to design and manufacture quality products for the home audio and home theater enthusiast. Your RSP-1 Modular Power Amplifier has been crafted to perform flawlessly for many years. As a result of this quality and craftsmanship, Emotiva offers the following warranty to owners of the RSP-1.

Emotiva Audio warrants the RSP-1 to be free of defects in materials and workmanship for a period of FIVE YEARS from the original date of purchase. The following items are excluded from, or will void this warranty:

- 1) *Damage to the RSP-1 caused during shipment and handling.*
- 2) *Damage to the RSP-1 caused by accident, misuse or abusive operation contrary to the instructions specified within this manual.*
- 3) *RSP-1 units that have had the serial numbers defaced, modified, or removed.*
- 4) *Damage to the RSP-1 resulting from a modification of, or attempted repair by any person or company not authorized by Emotiva.*
- 5) *Any RSP-1 unit purchased from a non-authorized dealer.*
- 6) *Emotiva does not assume liability for loss of use, or damage to, associated or connected equipment.*

Service Assistance for the RSP-1

Please note that BEFORE sending your RSP-1 in for repair, you MUST call Emotiva and obtain a returned material authorization (RMA) number. Before contacting Emotiva to begin the return process, please have as detailed a description of the problem(s) you are experiencing and the conditions under which the problem(s) occur. Additionally, please be sure to check the troubleshooting guide in this manual to rule out the possibility of something simple you may have overlooked. Please remember, this is a complicated product and most instances of perceived product failure are the result of improper set up or operation. Emotiva and its dealers will help you ascertain whether you have an operational problem or product defect.

Once you have obtained the RMA number, you must print this clearly on the outside of the box so it will be possible to determine from whom the RSP-1 came once it arrives at Emotiva. Parcels arriving without an RMA number will be refused and returned freight collect.

Please send your repairs with RMA number to:

Emotiva

Attn.: Repair Department

106 Mission Court, Suite 101

Franklin, TN 37067

Reference - (Put your RMA number in this spot)

EMOTIVA

Emotiva

106 Mission Court, Suite 101
Franklin, TN 37067

Tel - (615) 771-1224
(877) EMO-TECH
Fax - (615) 771-1128
Website - www.emotiva.com