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i The Decision Making Process

In this section, our objective is to help you extract the most out of your investment in your audio system. May we take a moment of your time with the following suggestions.

The aim of high fidelity audio is to attempt to recreate the original performance in its entirety via the recorded medium. To help you get to know what various instruments really do sound like, listen to live concerts of musical performances that you prefer. Select a few recordings of similar performances for comparison. Your Perreux equipment will (and the rest of your system should) provide a precise duplication in your listening area of the total musical performance, including the ambience of the venue in which the recording was made.

Read Magazines

Read hi-fi and audiovisual magazines, particularly the equipment reviews and letters to the editor sections. Use these as a general guide only, and try to read "between the lines". Remember no one specifically sets out to downgrade a particular piece of equipment, so what is not included in the review is often as important as the actual printed content.

Choose Your Hi-Fi Dealer Carefully

Choose your hi-fi dealer carefully; they are your professional guide. Preferably, they should be knowledgeable about music and recording techniques as well as the equipment itself. They should be able to provide a total service, including installation, system "tuning" advice, problem solving and after sales service. Frequent your dealer and listen to a variety of equipment using recordings, which are familiar to you. Ask questions and listen to advice, but remember to trust your own ears to tell you what sounds right for you. If possible, listen to your equipment choice in your own listening area before you finally make your purchase.

When deciding on your system you will need to differentiate between sales gimmicks and cosmetic wizardry, as against practical features and facilities. Recognise the "Christmas Tree Syndrome"- namely, the more flashing lights and switches the better it must be. Bear in mind that you are paying for these, and because of the necessity of careful pricing, compromises may have been made in the internal component quality vital for accurate sound reproduction. Each component through which the audio signal must pass will add its own character to the music you hear, hence the expression, "colouration". Perreux products are carefully designed to minimise componentry within the audio signal path. All componentry used is of highest quality and only included when absolute necessity is established; no component is there for a free ride or to correct for deficiencies elsewhere in the circuitry. With Perreux, emphasis is placed on maximum sound quality, component and unit reliability and long life.

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Introducing the Perreux Radiance Series

Key Features

The Perreux “Radiance” series is our finest quality offering. This series incorporates some of the highest levels of audio engineering available today.

- Compact
- Stylish
- High-powered design
- Dual mono, linear power supply construction
- Enhanced audio design – featuring, *non-invasive protection system, full DC coupling, minimal internal wiring, non-magnetic componentry and advanced MOSFET output stage*
- Fully microprocessor controlled – featuring, *high-level control, protection and display options*
- Remote controller, custom designed and built
- Phono and USB options
- Fully software upgradeable

The Perreux “Radiance” series takes you even closer to the elusive goal of “The Perfect Re-creation of a Musical Event”.

From all of us at Perreux Industries Limited, thank you for choosing the Perreux Radiance Series R200i integrated amplifier.

Martin van Rooyen

Managing Director
Perreux Industries Ltd

iii Important Safety Instructions

Note: Please read all instructions carefully before attempting to operate your Perreux R200i integrated amplifier.

- Please disconnect your system from the mains before attempting to connect or disconnect cables.
- Please disconnect your system from the mains before attempting to clean your unit.
- Please keep electrical equipment out of reach of children.
- Please unplug sensitive electronic equipment during electrical storms.
- Please replace any fuse with the value and type specified.
- DO NOT disconnect the mains earth from the system.
- Avoid operating the R200i with the cover removed.
- Avoid using any liquid inside the R200i.
- Avoid restricting or blocking ventilation access for the R200i.
- DO NOT bypass any fuse.
- DO NOT attempt to repair the R200i. In the event of a problem, please contact your Perreux dealer.
- Avoid exposing the R200i to extremely high or low temperatures.
- DO NOT operate this product in an explosive atmosphere.

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Features at a Glance

Remote Controller

Fully Featured

Full control of the amplifier, and connected Perreux Radiance series peripherals is possible with the custom designed 36-button remote controller.

LED Indication

Each time a key is depressed, a LED representing the selected source is illuminated briefly. This greatly avoids confusion.

Compact and Ergonomic

Designed to sit snugly in the palm of your hand, the remote is compact, comfortable to hold and practical to use.

Quality

The remote is constructed from high quality cast zinc and acrylic materials.

Custom Designed and Built

The remote has been custom designed and built by the Perreux engineers and befits the Radiance series perfectly.

Integrated Amplifier

Integrated

By eliminating the interface between separate pre and power amplifiers and removing concerns about impedance matching, the R200i provides a shorter, purer signal path without costly exposed interconnect cables and separate power cords.

Stylish

The front panel is carved from 10mm (0.39 inch) thick aluminium, and then heavily electroplated in either a Satin or Black Chrome finish. Particular attention has been paid to every aspect of the product styling. All control functions and display settings are accessed from within the central ellipse on the front panel. The cover is made from high gloss black acrylic.

Compact

At 430mm wide x 105mm high x 340mm deep (16.9" x 4.1" x 13.4") The R200i is extremely compact.

Highly Powered

Capable of continuously delivering 200W into 8Ω (360W into 4Ω), the R200i is highly powered. Utilising 6 very high current Toshiba MOSFETs per channel, the R200i handles even the most difficult loads with ease.

Dual Mono Construction

Featuring dual mono construction. There are two separate toroidally wound power supplies, rectification and smoothing sections. This topology maintains maximum channel separation independent of load.

Dual Capacitive Smoothing

Four filter capacitors (40,000uF per channel, 80,000uF total) per channel are coupled in parallel to reduce power supply resistance. The power supply is extremely rigid, capable of delivering huge amounts of power instantaneously. The result is significantly improved dynamic capabilities.

Separate Control Toroidal Power Supply

All control circuitry is supplied from a separate toroidally wound multi tap transformer. This eliminates any risk of noise contamination through the supply.

Large High Quality Binding Posts/Speaker B Selector

The output of the amplifier features two pairs of high quality binding posts per channel that enables two separate zones to be controlled. Alternately at the touch of a button they can be internally coupled, and used for bi wiring a single pair of speakers.

Sophisticated Protection Package

The R200i features a sophisticated protection package for the amplifier and connected load. Protection covering: supply (soft charge), clipping, over current, over temperature, DC offset, internal AC supply, DC fuse protection.

Non-Invasive Protection

The protection is non-invasive and therefore will not alter or degrade the signal path

Full DC Coupling

The amplifier is fully DC coupled from the preamplifier input terminals to the speaker binding posts.

Totally Microprocessor Controlled

All functions are managed by a powerful onboard microprocessor.

Full Information

In the event that the amplifier protects itself, the user is fully informed of any activity via the display.

Highest-Grade Double-Sided Printed Circuit Boards

All printed circuit boards utilised within the R200i are constructed from the highest-grade fiberglass base stock. Tracks are etched from 2oz copper. This provides added stability under variable thermal or electrical loads and assures maximum signal integrity, separation and product life.

Minimal Internal Wiring

Meticulous attention to the overall design and placement of each component has resulted in an internal environment that is virtually devoid of all internal wiring.

Ultra Short Signal Path

Careful attention has been paid to the signal path within the amplifier. It is ultra short and very carefully routed to avoid power components and digital lines.

Thermal Management System

Comprehensive thermal monitoring. Left and right heat sink temperature (C°) is displayed in real time on the display. These variables are utilised by the microprocessor for individual channel over temperature monitoring and protection.

Non-Magnetic Components Used for the Chassis and Cover

The chassis and all associated metalwork have been manufactured from high quality grade aluminum and acrylic. These high quality non-magnetic components negate the possibility of harmful circulating eddy currents building up within the amplifier.

Directly Soldered Preamplifier Inputs and Outputs

Preamplifier Inputs and Outputs are directly soldered to the printed circuit board. There are no connecting cables to increase parasitic inductance, capacitance and resistance.

Highly Customisable

The R200i is highly user configurable. Options to assign input labels, balance, initial volume, maximum volume, brightness, display timeout, energy saver, speaker B and last input used, provide maximum flexibility to the user. All user settings are retained in non-volatile EEPROM.

Home Theatre Integration

The preamplifier bypass function enables effortless integration into a home theatre system.

Two-Volume Level Instruction Set

The R200i can be programmed with two volume level instruction sets. The first set applies a default to the switch on volume level. The second applies a limit to the maximum setting of the volume control.

Dual Ramp Speed Volume Control

The volume control ramps upward from 0 to 59 in approximately 10 seconds and downward from 59 to 0 in approximately 5 seconds.

Smart Mute

The muting function integrates seamlessly with the volume control. Under normal conditions, depressing mute will completely attenuate the volume control. While in mute mode the user can reduce the volume level (volume -), so that when volume is restored it will recommence at the reduced setting. This action will not alter the mute function. Conversely if the volume level is increased (volume +), this instantaneously overrides any mute action and increases the volume setting from its pre-mute state.

Large Format Alphanumeric Vacuum Fluorescent Display

The R200i display is a sharp and bright alphanumeric vacuum fluorescent display (VFD) featuring a 2-line/16-character display. The software has been utilised to provide double-height digits, a bar graph of volume, the input currently selected and other settings and options.

Adjustable Display Lighting

The display of the R200i can be adjusted to suit ambient room conditions, 4 adjustable settings are available. Alternately the display lighting can be switched off.

Remote On/Off

The R200i and connected peripherals can be remotely switched on and off.

Energy Saver Feature

There are 8 internal timers available that enable the amplifier to run for a period of time then power down into standby mode. These range from 1 hour through to 2 days.

Future-Proof

Your distributor is capable of upgrading the software contained on both amplifier and remote handset via a connected PC. This protects and future-proofs your investment in the Perreaux R200i.

Optional Modules

Moving Coil/Magnet Phono Stage

The R200i features a very high quality phono stage option.

USB Connection

This option facilitates the streaming of music directly from your computer's hard disc drive. Incorporating a very high-resolution digital to analog converter (DAC) module, this option is designed to further enhance your flexibility and enjoyment with the R200i.

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Special Design Features

An Integrated Amplifier?	Perreaux has been designing and manufacturing only the highest quality audio componentry for more than a quarter of a century. Technology has continued to evolve rapidly over that time and our knowledge and application of design, materials and manufacturing techniques has advanced in tandem with this. Today's Perreaux range comes closer to fulfilling our company's shared vision than at any other time in the past. The R200i has been developed to meet customer demands for compact higher quality products. Careful attention has been taken throughout the development phase, not to make compromises that would degrade the high quality of reproduction that the unit is capable of delivering. <i>To follow is a discussion on some of the technological design features that have been incorporated into the R200i.</i>
Emphasis on Size	At 430mm wide x 105mm high x 340mm deep (16.9" x 4.1" x 13.4") it's low profile and small footprint ensure that the R200i can be used in almost any environment.
Construction	The milled aluminium front panel, thick black acrylic cover, functional heat sinks and solid remote controller are all hallmarks of the Perreaux brand. The beautifully styled front panel is milled from solid 10mm (0.39 inch) thick aluminium and offered in either Satin or Black Chrome electroplate finishes. Inset within the elongated ellipse is a blue alphanumeric vacuum fluorescent display, all functions are accessed via 5 individually backlit push buttons. The cover is manufactured from thick black acrylic. No cover fixing screws are visible. A series of slots run down each side of the cover to facilitate air ventilation. By placing the heat sinks on the outside of the product, the R200i, they are able to breathe freely and operate at highest efficiency. The multifunction remote controller is small, stylish and ergonomically designed for comfort. It is manufactured from cast zinc alloy and offered in either Satin or Black Chrome electroplate finishes, matching the R200i front panel.

The User Interface

The user interface is a blend of minimalism, functionality and aesthetics.

Front Panel Interface.

All user interaction takes place within the ellipse. The highest level of user interaction is assured via the 2-line/16-character alphanumeric vacuum fluorescent display (VFD). In combination with the VFD, the five large format buttons with backlit labels situated either side of the display, provide the user with full interaction.

Handheld Remote Controller

The 36 button remote controller has been designed to provide complete interaction with the R200i and other nominated Perreux peripherals.

On account of the compactness of design, all functions are accessible with your thumb.

Minimalist Design

Leading British architect, John Pawson, writes:

“The Minimum can be defined as the perfection that an object achieves when it is no longer possible to improve it by subtraction. This is the quality that an object has when every component, every detail, and every junction has been reduced or condensed to the essentials. It is the result of the omission of the inessentials”.

Perreux has historically embraced the minimalist ethic from an audio design perspective only. The concept of “less equating to more” has been at the heart of all Perreux audio designs for more than a quarter of a century.

Minimalist Electronics

We wish to maximise the quality of your listening pleasure by keeping the componentry and signal path as uncluttered, short and clean possible. All components in the signal path, even those of the highest quality have an effect on the signal, thereby altering the quality of the reproduction in some way. Our aim is to recreate in its entirety, the original performance by not adding or subtracting anything, irrespective of the source.

Minimalist User Interface

We carefully study the user interface and par down the number of buttons and associated clutter leaving just the essential and no more. How tempting it has been over the years to loose sight of our core values as technology or trends have made it possible. That is one of the reasons why our older products still have such a high resale value today. The user interface has and always will remain simple, free from adornments, clean and uncluttered.

Minimalist Aesthetics

Our products appeal to those who seek the ultimate in audio exclusivity, namely the perfect blend of “form and function”.

“Form and function” are both tough masters. That is why our amplifier heat sinks are not hidden, but instead feature prominently in all our designs. We make no excuses for producing some of the most distinctive high-end audio products on the planet. We let “form and function” blend together in perfect harmony. This surely is the essence of true minimalist utilisation.

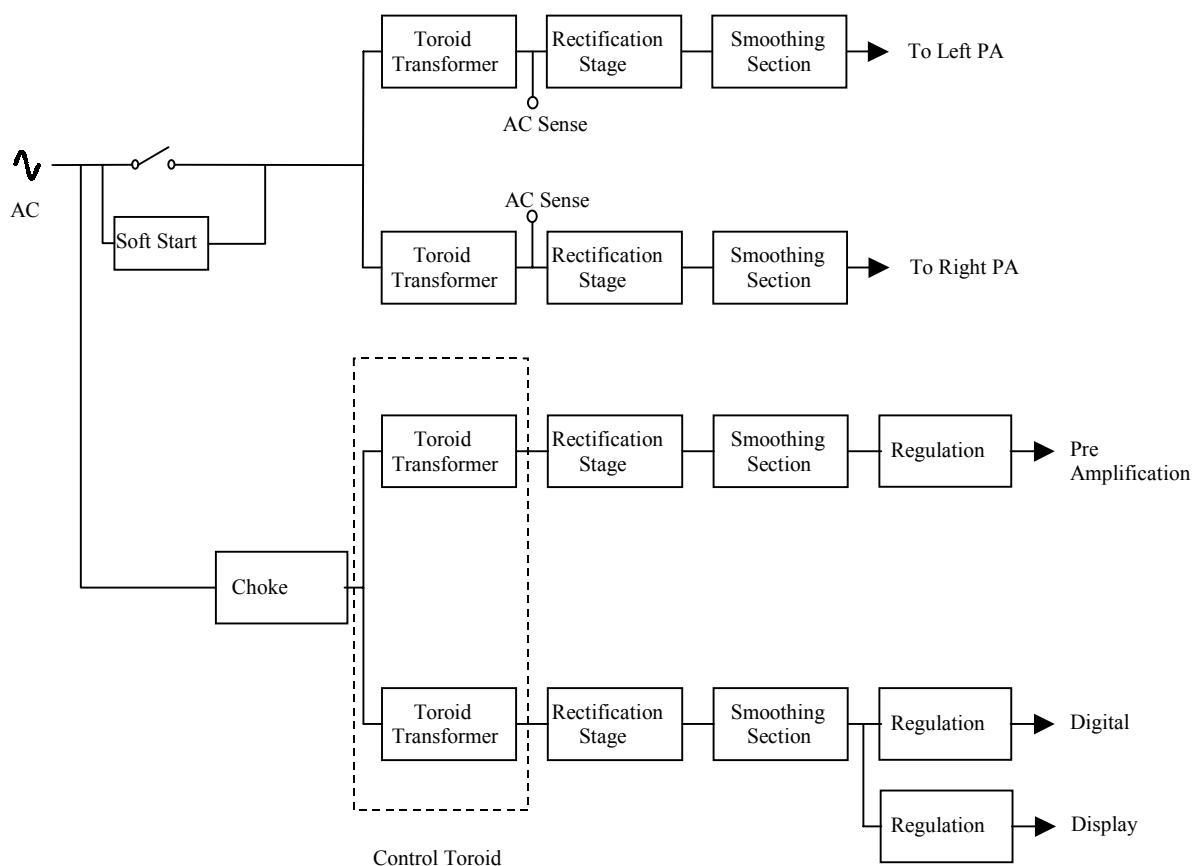
Minimalism in a Wider Context

John Pawson writes:

“Clearly simplicity has dimensions to it that go beyond the purely aesthetic: it can be seen as the reflection of some innate, inner quality, or the pursuit of philosophical or literary insight into the nature of harmony, reason, and truth”.

The Power Supplies

The Perreaux R200i features four separate power supplies, whose task it is to provide clean, stable DC power to the various circuit elements within the amplifier.



The Preamplifier Section

Control Voltage Supply

All user interface digital and control circuits, source their power from an isolated DC supply. The supply features a custom wound, multi tap toroidal transformer directly soldered to the PCB. By incorporating a separate control supply, it minimises the possibility of noise entering the audio circuitry.

Preamplifier Voltage Supply

The preamplifier section is also powered from it's own separate low voltage supply, thereby further reducing the possibility of noise entering the audio circuitry.

Separate Left and Right Channel Power Supplies (Dual-Mono)

The concept behind dual-mono topology is to incorporate two amplifiers within a single enclosure. By incorporating 2 x high quality power supplies into the design, the R200i maintains maximum channel separation.

Huge Smoothing Section

Four filter capacitors (40,000uF per channel, 80,000uF total) per channel are coupled in parallel for greatly reduced power supply resistance and, consequently, significantly improved dynamic capabilities.

The sonic benefits of a power supply as high a quality as the R200i has are significant, resulting in effortless reproduction of dynamic contrast as well as stable and detailed stereo imaging.

The preamplifier features five analogue input pairs. Four pairs of single ended RCA inputs and a single pair of balanced XLR inputs.

A high quality, class A phono stage can be installed within the R200i. Alternately, provision is allowed for to fit a Perreux designed and built digital USB interface module, featuring a very highly specified digital to analog converter (DAC).

Two single ended output pairs are also provided: A pair of single ended "direct" and "preamplifier" outputs.

Perreux engineers have carefully eliminated any signal borne noise at the input, before the possibility of propagation occurs. In addition to this, only highest quality components such as "Burr Brown" and "Crystal" are used throughout the preamplifier stage. The result is a low noise, highly dynamic and detailed resolution of the connected source.

The Volume Control	The R200i features precision dual electronically controlled resistor ladder network volume controls, with special consideration given to the layout. Local supply regulation and passive bypass components are used to assure optimal results. An active output stage is incorporated to ensure signal integrity to the dual power amplification stages and single ended preamplifier output stage. It is capable of driving a 470Ω load with a dynamic range of 116dB.
The Output Stage	Each output stage incorporates 6 Toshiba high current MOSFETs. With a theoretical maximum current capability of 36 amps, there is a massive amount of headroom inbuilt into this unit. Being larger devices, they have a lower on-state resistance, this feature is significant as less heat is required to be dissipated by the heat sinks. For optimal heat dissipation, each device is evenly spaced across the current gain board. Special emphasis has been given to the circuit layout, thereby ensuring sonic integrity.
Protection Functions	The R200i features a sophisticated protection package for the mains supply, amplifier and connected load. Protection covering: External AC supply, Maximum volume, Internal AC supply, Clipping, Over current, Over temperature, DC Offset, Internal fuse failure protection. For a complete discussion on the onboard protection functions, please refer to Chapter 3 “Protection Functions”.
Input Configuration	Input labels are user assignable. At switch on, the unit always resorts back to the last input used.
The Role of the Micro-Processor	The onboard microprocessor handles all interfacing, monitoring, and switching functions. The design also provides for maximum separation between digital and analogue circuitry. User configured settings are stored in non-volatile EEPROM. The R200i is fully software upgradeable.

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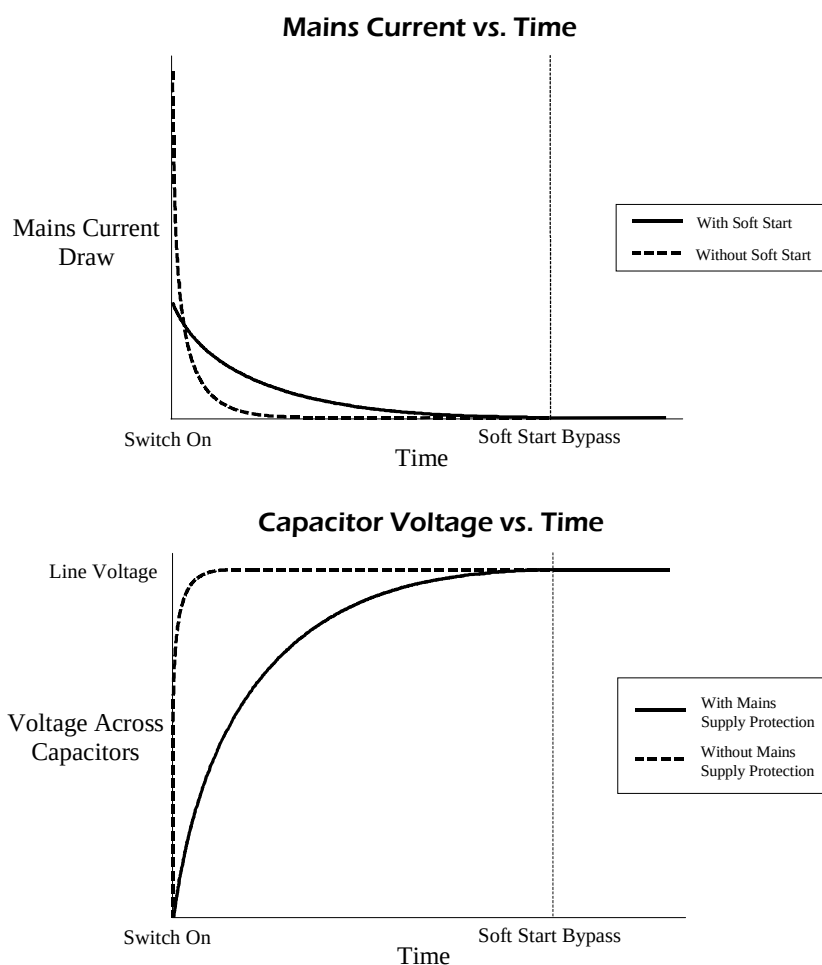
Protection Functions

External AC Supply Protection

The R200i has been carefully designed for continuous delivery of highest quality audio at full rated output. Protection from internal, external component failure and user error is an integral part of our design philosophy. This “system wide approach” provides some of the highest levels of security that an integrated amplifier can add to any system. This in turn works to better safeguard your investment in high quality audio componentry.

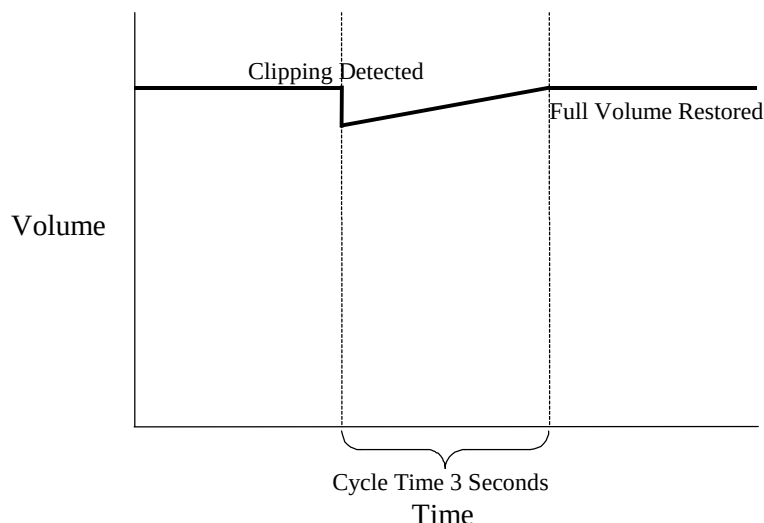
An explanation of the R200i protection functions is listed below.

The R200i incorporates 80,000uF of smoothing capacitance within its onboard power supply. The unit features a soft charging circuit, whose role at switch on, is to slowly charge the internal smoothing capacitors to full operating level. This design ensures that potentially harmful inrush current effects never occur at switch on. This in turn acts to protect the mains supply and any sensitive equipment that may be sharing it. Charge time at switch on is approximately four seconds.



Maximum Volume Protection	The maximum volume of the R200i can be software configured. This function works to protect the connected speaker load from possible damage due to application of excess power. This feature can prove useful during special events or in instances where the audio system is being enjoyed by those who are unfamiliar with the capability of the R200i in relation to the connected speaker load. Note: All fault conditions described below are left or right channel specific and will be displayed individually. When a fault occurs, the ONLY user actions allowable are: Preamp volume can be lowered Standby button can be operated The electronic over current protection function is the ONLY exception to this rule, as a reset can be attempted by depressing the "MENU/ENTR" button.
Internal AC Supply Protection	The R200i monitors it's dual AC toroidal transformer voltages, that in turn supply the rectification stages. In the event that either toroidal transformer AC output should fail, the amplifier will shut down and display the words "AC FAULT" Note: In the event of an AC fault, please allow time for the internal toroidal transformers to cool down (several hours). These units have an internal (automatically resetting) 120°C thermal switch on board, which will reset when cool. If the fault does not clear after the recommended time, please consult your Perreux dealer. For more information, please refer to Chapter 15 "Faultfinding Your R200i" and consult the "Description of Amplifier Faults" section.
Clipping Protection	An automatic electronic clipping protection circuit has been designed into the unit. In the event that volume load demand is unsustainable, an internal clipping protection algorithm is automatically activated. Under these conditions, the volume setting is instantly reduced and then gradually restored to the original volume set point. The clipping cycle time is typically three seconds. The amplifier will display the word "CLIPPING" during this time. If during the restoration period, clipping is detected again, the process is repeated. In this way, maximum volume demand is maintained without sustaining any of the negative effects that a connected load can potentially suffer from typical amplifier clipping conditions. Please refer to the following diagram.

Clipping Protection



Over Current Protection

The R200i features an electronic over current protection function. In the event that demand exceeds the amplifier's full rated continuous output current, the unit will protect itself and the connected speaker load from possible damage.

Over current protection will operate under the following conditions:

- Accidental shorting of the speaker output terminals
- Speaker driver/crossover faults
- Excessive current demand exceeding the R200i continuous output rating

In the event of an over current fault, the words "OVER CURRENT" will be displayed on the amplifier's front panel. The amplifier will shut down. An over-current fault is user resetable by depressing the "MENU/ENTR" button on the display.

For more information, please refer to Chapter 15 "Faultfinding Your R200i" and consult the "Description of Amplifier Faults" section.

Over Temperature Protection

A comprehensive thermal management system is employed. The surface temperature of each heat sink is continually being monitored and contrasted against predetermined values. Under high load demands, the external heat sink temperature may rise above a predetermined trigger point. In the event of an over temperature fault occurring, the system has been designed to protect itself by disconnecting the over heated channel. In this manner, the channel can be allowed to cool down rapidly.

Individual heat sink temperatures can be read out in °C in real time on the amplifier's display.

	At 85°C (185°F) the amplifier will automatically disengage the connected speaker load from the left or right hand channel and the words “OVER TEMP” will be displayed. To prevent the protection function from cycling around the trigger point, a hysteresis band has been included. This feature ensures that once initiated, the heat sink temperature must be reduced by 5°C (41°F), to 80°C (176°F) before the channel once again becomes active. For more information on over temperature protection, please refer to Chapter 9 “Interacting with Your R200i”.
Note:	The user can connect any load from 1Ω to infinity. In the event that the connected load and volume demand is excessive, the R200i will protect itself.
DC Offset Protection	DC servos are used to correct for potentially damaging DC offset from source components. The correction range is ±15V, at the output of the amplifier. If the DC offset is in excess of ±600mV, the amplifier will disconnect the output and display the words “DC OFFSET”. For more information, please refer to Chapter 15 “Faultfinding Your R200i” and consult the “Description of Amplifier Faults” section.
Internal Fuse Failure Protection	There are four fuses mounted in series with the amplifier’s two internal DC buses. In the event that any one of the fuses should fail, the amplifier will automatically detect the fault, disconnect the output and display the words “+ FUSE FAIL” or “– FUSE FAIL”
Note:	If a positive fuse only fails, under certain circumstances, other fault conditions may appear on the display. Please check with your Perreux dealer.
	For more information, please refer to Chapter 15 “Faultfinding Your R200i” and consult the “Description of Amplifier Faults” section.
Note:	Every fault condition described above is left or right channel specific.
Multiple Faults	For more information on multiple faults, please refer to Chapter 15 “Faultfinding Your R200i” and consult the “Description of Amplifier Faults” section.

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Unpacking and Placement

Unpacking Procedure

The R200i is packaged for maximum protection. Please carefully read the instructions below before proceeding to unpack the unit. Be extremely careful.

- Inspect both ends of the cardboard box and open at the end without the central staple by slitting the reinforced tape at either side.
- Fold back the flaps and tip the package on end and the inner box will slide out.
- Lay the inner box down flat and upright, open it conventionally by separating the top tray from the bottom.
- Remove the polystyrene block at the front of the amplifier; this contains the remote controller, batteries, screwdriver and white cotton gloves.
- The product can now be removed from the bottom packaging. This will be easier if you have someone to help you by holding the base of the box.
- Alternately, the bottom tray and amplifier could be tipped upside down and the bottom packaging removed. If opened in this manner, please ensure that you turn the contents over again.

Note: Be very careful to secure the unit if you are planning to flip the package upside down.

- Remove the two white polystyrene protectors off either side of the amplifier, leaving the black material covering.
- Please use the white cotton gloves provided to assist with further unpacking and placement of the R200i.

Note: The cover is made from black acrylic and the front panel features an electroplate finish, both of which can easily be damaged. Please take special precautions when handling your amplifier.

- Pull back the material and remove the protective black tissue from the front panel.
- Carefully peel off the adhesive protective material on the R200i cover.

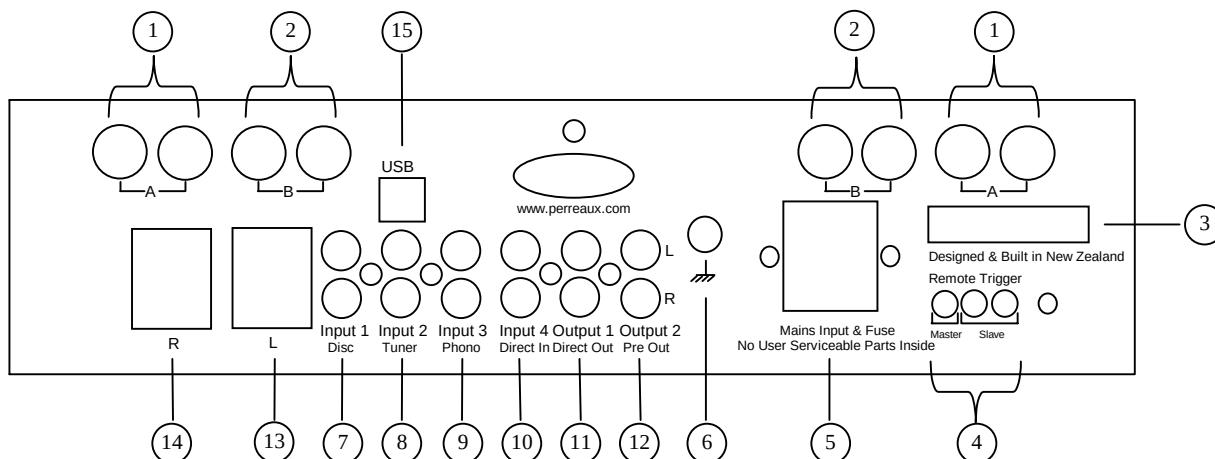
The amplifier is now unpacked and ready for further installation.

Note: Please retain all packaging material for future transport.

Box Contents	1 x R200i Integrated amplifier 1 x R200i Product manual 1 x R200i Remote control 1 x Detachable AC power cord 2 x AAA alkaline batteries 1 x Philips screwdriver 1 x Pair of white cotton gloves
Placing Your R200i	The R200i should generally be placed close to your source equipment, keeping the interconnect cabling short. We strongly recommend keeping the R200i on it's own separate shelf to allow for proper ventilation.
Ventilation Requirements	The R200i is a high-powered amplifier. For optimal performance, the unit <u>MUST</u> receive adequate ventilation. ▫ Please do not install in a sealed cabinet. ▫ Please do not stack products directly on top of the unit. ▫ Please do not cover the product with a cloth or similar. ▫ Please do not mount the R200i directly onto carpeted surfaces. ▫ As a “rule of thumb”, allow 100mm (3-4 inches) around all sides of the product and mount the R200i on a flat surface, ensuring that the unit has adequate access to free flowing air. ▫ In the event that the R200i is to be incorporated into custom cabinetry, please refer to Chapter 19 “Physical Dimensions”.
Note:	Please take all necessary steps to ensure that the unit receives adequate ventilation

5

Rear Panel Functions



Note: All rear panel left and right descriptions are as viewed from the front of the amplifier.

1 Speaker A Binding Posts

These are the default speaker binding posts. Use the speaker A binding posts for your primary speaker connections.

2 Speaker B Binding Posts

Caution! Please refer to Chapter 9 “Interacting with Your R200i” on Speaker B setup before use.

Speaker B binding posts can be used for two purposes:

- They can be used to control an auxiliary set of speakers (typically controlling a pair in a separate room)
- Alternately they can be used for speaker bi-wiring applications.

Caution! Never connect the amplifier’s output terminals to any device other than a loudspeaker.

Please do not short circuit the amplifier’s output terminals.

Never connect the output of one amplifier to the output terminals of another amplifier.

For more information please refer to Chapter 9 “Interacting with Your R200i” and Chapter 11 “Maximising System Potential”.

3 Serial Number, Input Voltage and Fuse Rating

Serial Number

The serial number is unique to your R200i. Please record this number and store it in a safe place. For any service related enquiry, please be prepared to quote the product serial number to Perreaux personnel or their service representative.

Input Voltage

The voltage displayed in this area is the ONLY voltage that can be accepted by the unit.

Caution! Never attempt to connect the unit to the incorrect voltage. Severe damage can result from applying incorrect voltage to the unit.

Fuse Rating

The fuse rating displayed here, refers to the rating of the mains inlet fuses (2x) that are located below the mains inlet receptacle.

For more information on fuse ratings, please refer to Chapter 18 “Specifications”.

Caution! These are the ONLY user accessible fuses.

To inspect these fuses, you must remove the mains inlet cord first.

Never replace the fuses with any other ratings other than the one specified.

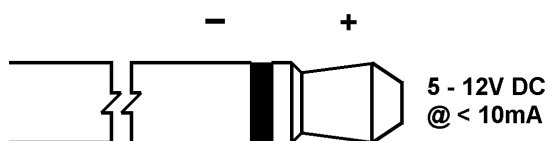
4 Remote trigger inputs and outputs

The remote trigger system is designed to switch on or off the R200i and any connected peripherals. The most common coupling method is to connect peripheral devices to the amplifier’s slave outputs. Under this connection technique, if the R200i is switched on or off via the remote controller or front panel controls, any connected peripherals will also be switched on or off.

Master Trigger Input

The master trigger input is used to take the R200i in and out of standby. The master trigger input is designed to accept a 3.5mm diameter male plug. The voltage rating is +5V to +12V DC level ON/0V DC level OFF.

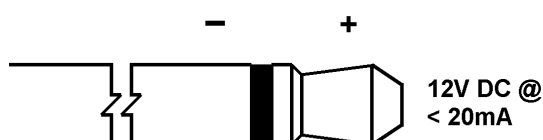
The plug must follow the specifications as per the following diagram.



Slave Trigger Outputs

Two parallel slave trigger outputs are provided to switch on or off any connected peripherals to the R200i. In the event that it is not possible to cascade connect peripherals, two slave outputs are provided. The slave trigger outputs are designed to accept a 3.5mm diameter male DIN plug. The voltage rating is +12V DC level ON/0V DC level OFF.

The plug must follow the specifications as per the diagram below.



5 AC Mains Input and Fuses

An IEC-standard mains input and user accessible fuse is provided at the rear of the unit. The AC cord set is removable.

Caution!

Prior to connection to the AC mains, please check the voltage label on the rear panel to ensure that your unit conforms to the power supply in your area. Never attempt to connect the unit to the incorrect voltage. Severe damage can result from applying incorrect voltage to the unit.

The mains inlet fuses (2x) are located below the mains inlet receptacle.

For more information on fuse ratings, please refer to Chapter 18 "Specifications".

Caution!

These are the ONLY user accessible fuses.

To inspect the fuses, you must remove the mains inlet cord first.

Never replace the fuses with any other ratings other than the one specified on the rear panel.

6 Phono Earth Connection and General Earth

Connect your optional phono input earth here.

For more information, please refer to Chapter 10 "Upgrading Your R200i".

7 Unbalanced Input 1 (Disc)

Accepts a standard unbalanced input pair (RCA). The left channel connection is uppermost. The default display label is “Disc”. The display label is user selectable.

For more information on this, please refer to Chapter 9 “Interacting with Your R200i” and consult the “System Setup” section.

8 Unbalanced Input 2 (Tuner)

Accepts a standard unbalanced input pair (RCA). The left channel connection is uppermost. The default display label is “Tuner”. The display label is user selectable.

For more information on this, please refer to Chapter 9 “Interacting with Your R200i” and consult the “System Setup” section.

9 Unbalanced Input 3 (Phono)

Accepts a standard unbalanced input pair (RCA). The left channel connection is uppermost. The default display label is “VCR” unless the optional phono stage is installed. The display label is user selectable.

For more information, please refer to Chapter 9 “Interacting with Your R200i” and consult the “System Setup” section.

10 Unbalanced Input 4 (Direct In)

Accepts a standard unbalanced input pair (RCA). The left channel connection is uppermost. The default display label is “Tape”. The display label is user selectable.

For more information, please refer to Chapter 9 “Interacting with Your R200i” and consult the “System Setup” section.

Using the power amplifier (Direct In) component of the R200i in conjunction with the “Bypass Preamp” software function, allows integration into a home theatre system. The “Bypass Preamp” option must be software selected.

For more information, please refer to Chapter 9 “Interacting with Your R200i” and consult the “Preamp Setup” section.

Note:

When the “Bypass Preamp” feature is selected from the software, Output 1 and Output 2 and the internal power amplifier will all simultaneously receive and mirror the line level Input 4.

For more information on this function, please refer to the following “Input/Output Switch Function” diagram.

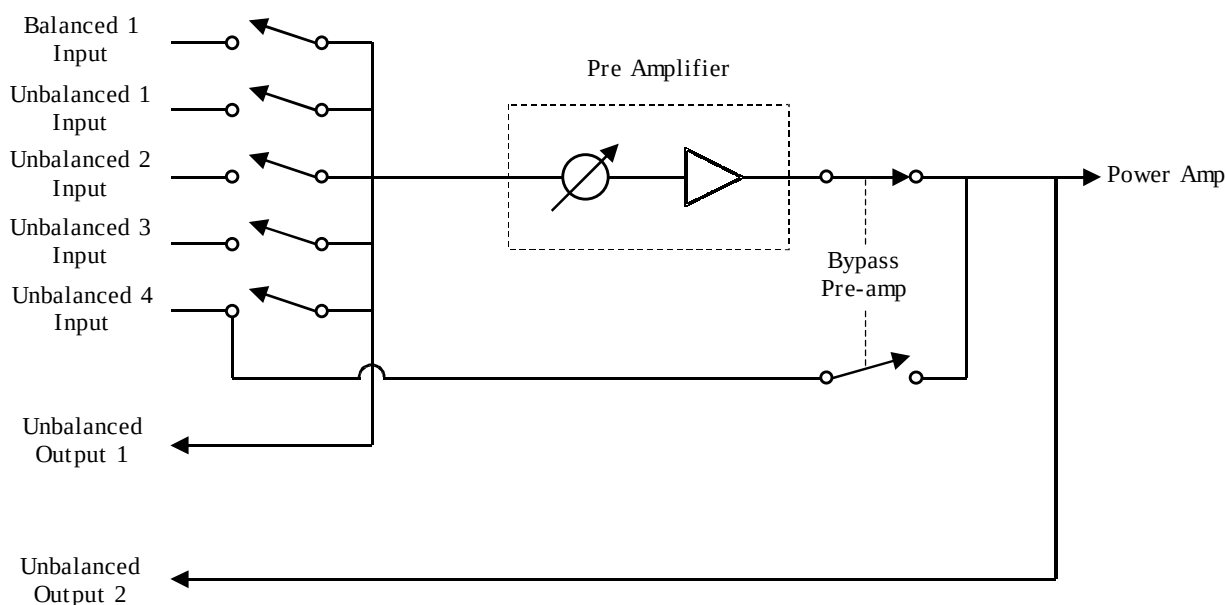
11 Unbalanced Output 1 (Direct Out)

Accepts a standard unbalanced output pair (RCA). This output is line level. The left channel connection is uppermost. Connect Output 1 to the left and right channel of your auxiliary device. Output 1 is unaffected by the volume control of the R200i. Output 1 tracks the selected input, reflecting to the auxiliary device the same input signal to which you have selected (Input 1 or 2 or 3 or 4 or Balanced). Output 1 will shutdown when the R200i is placed into standby.

For more information on this function, please refer to the "Input/Output Switch Function" diagram below.

12 Unbalanced Output 2 (Pre Out)

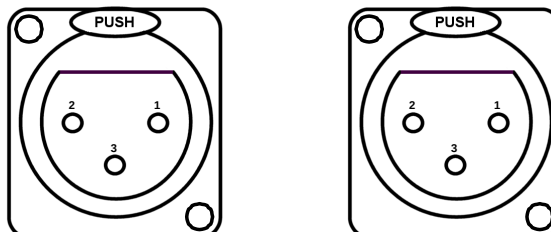
Accepts a standard unbalanced output pair (RCA). The left channel connection is uppermost. Connect Output 2 to the left and right channel of your auxiliary device. Output 2 tracks the selected input, reflecting to the auxiliary device the same input signal but after the preamplifier. Output 2 will shutdown when the R200i is placed into standby.



Input/Output Switch Function diagram

13/14 Balanced Inputs Left/Right

Accepts left and right channel balanced signals from source equipment with balanced outputs. Refer to diagram for pin assignments.



Pin 1: Signal ground
 Pin 2: Signal + (non-inverting)
 Pin 3: Signal - (inverting)
 Shield ground: Chassis ground

The display label is user selectable. For more information on this, please refer to Chapter 9 “Interacting with Your R200i” and consult the “System Setup” section.

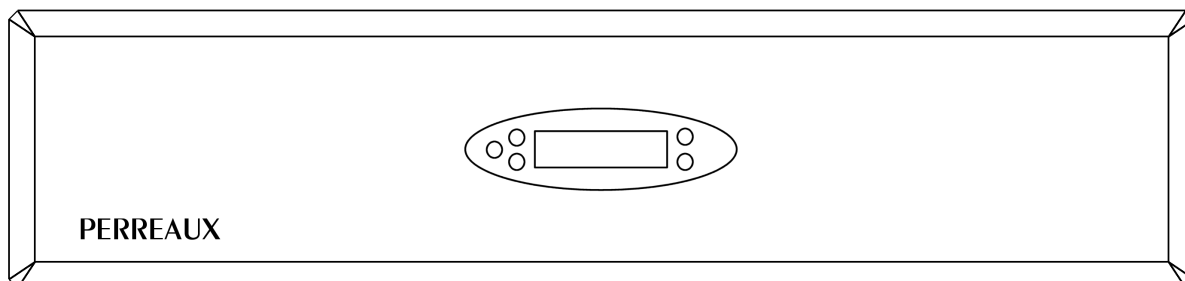
Note: Please refer to the operating manuals of your balanced output line level source to verify that the pin assignments of the output connectors correspond to the R200i balanced inputs. In the event that they are not compatible, the interconnecting cable will need to be altered to suit.

15 USB (Universal Serial Bus) Input

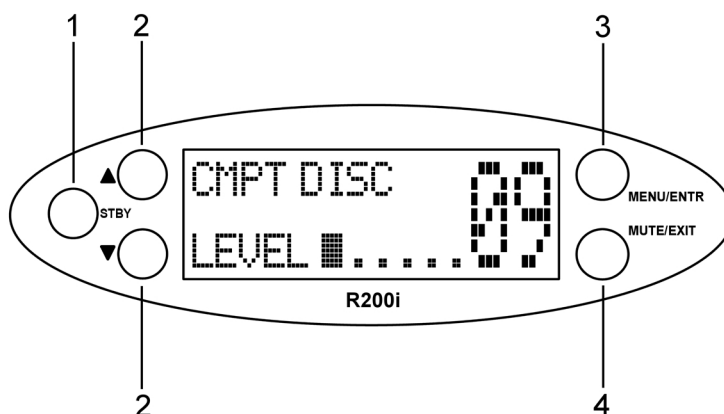
For more information on this input, please refer to Chapter 10 “Upgrading Your R200i” and consult the “Optional Modules for Your R200i” section.

6

Front Panel Interaction



Buttons



1 STBY

Depressing this button takes the amplifier in and out of standby mode.

2 ▲▼

By depressing either the ▲ or ▼ button in the default screen, the volume will increase or decrease.

Used for navigation within the menu structure.

Used for parameter adjustment.

3 MENU/ENTR

Used to access the amplifier menu

Confirms an altered setting from within the menu structure.

4 MUTE/EXIT

When in the default screen will mute the volume.

Exits the menu structure.

Vacuum Fluorescent Display



When the display is viewed in the default mode, there are three areas of interest.

1 Input

The input currently selected is displayed.

2 Bar Graph Level

The volume level is displayed as a series of blocks. The movement is from left to right and corresponds with the minimum to maximum volume. The movement is linear throughout its range.

3 Numeric Level

The volume is simultaneously displayed in double height numerals. The range is from 0 as a minimum to 59 as a maximum. The movement is linear throughout its range.

7

Instant Install

If you are like us, the first thing you will want to do is to play your favourite piece of music through your new R200i. The following instructions are written to enable you to achieve this as quickly as possible. These are not comprehensive instructions, but are designed to enable you to play music now!

Note: Please take the time to read the R200i manual thoroughly as it incorporates many unusual features, which will enhance its operation.

1 Place on a flat surface

Not a carpeted floor and do not cover the amplifier!

2 Turn off associated components

3 Connect a source to one of the inputs at the rear of the R200i

For example, connect the outputs of your CD player into the left and right inputs of Input 1 (Disc).

4 Connect your speaker cables to the left and right speaker A terminals

We recommend using high quality connectors for your speaker cables, spade lugs are the preferable option as they combine a larger surface area with the possibility of a strong mechanical connection; however, high quality banana terminals are also acceptable.

Note: There is no need over tighten the speaker terminals. Quality banana terminals are also good.

5 Connect the power

After checking the supply voltage compatibility with the voltage rating on the R200i rear panel, insert the power cord set supplied into the rear of the unit and into the wall. Switch on the socket at the wall.

6 Start the source

Switch on the source component both at the wall and on its front panel. In the case of a CD player, ensure you have a CD inserted and press play.

7 Increasing the volume

After the R200i has initialised, depress and hold down the ▲ button on the front display until the volume reaches a comfortable listening level.

Note: If you are not hearing anything from your speakers at volume level 20, do not increase the volume further.

Please start the instant install procedure again, carefully checking each step as you go.

CONGRATULATIONS!

Now that you have achieved your first objective, sit back, relax and please read the rest of the manual at your own pace in your favourite armchair whilst sipping a hot cup of coffee. You'll find the whole experience much more pleasurable whilst listening to music.

8 Using the Remote Controller

Installation of Batteries

The 36 button remote controller has been designed to provide complete interaction with the R200i and other nominated Perreux peripherals.

Because of the compactness of design, all remote functions are accessible with your thumb.

Remove the four screws from the top of the remote control using the M2 Philips head screwdriver supplied, being careful not to damage the screw heads. Turn the screwdriver anti-clockwise to remove the screws.

To enable you to easily relocate the screws again, carefully place the 4 screws onto an empty saucer.

Once the screws are removed, tip the remote upside down and gently tap it into your other hand. The contents of the remote should come apart.

Remove the 2xAAA batteries from their blister package and insert into the battery holder located underneath the PCB.

Caution!

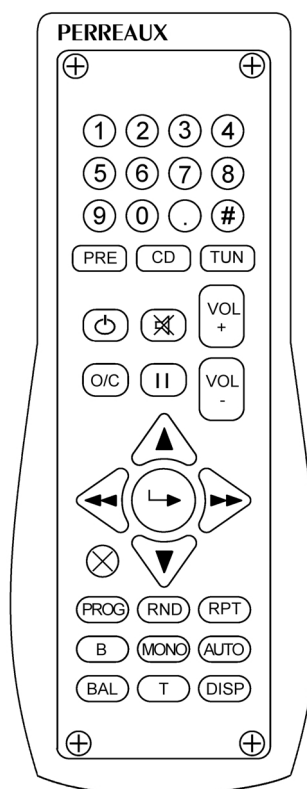
Please take precautions to ensure that the polarity of the batteries matches the battery holder positions.

Reassemble in reverse order.

Caution!

Never use force to reassemble. If the remote does not easily assemble, there will be a reason for this. Please note that the M2 screws are very small and are easily cross threaded. Ensure that each of the four screws is started before tightening any individual screw. Please do not over tighten the mounting screws.

Operating the Remote Controller



The R200i is supplied with a 36-button remote control unit.

Note: For information on operation of Radiance peripherals via the remote control, please refer to the product manual concerned.

Punch through buttons



Depressing either of the buttons will increase or decrease the volume setting of the R200i.



Depress to mute the volume control.

If the volume level is decreased while the R200i is muted, the new lower level will be restored when mute is cancelled.

If the volume level is increased while the R200i is muted, mute is instantly cancelled and the volume increased.

Note: These buttons apply to the R200i, or any other Perreux Radiance series preamplifier.

Other Buttons

Note: These buttons may have multiple uses



Depress this button to move the R200i in and out of standby mode.



Toggles Speaker B in and out of circuit.



Displays amplifier left and right channel temperature in °C.



Displays current balance setting.

By depressing the  or  keys, the balance can be altered.

Depressing the  button confirms your entry.

Note: If any parameter is adjusted and the enter button is pressed, the entry is confirmed and goes back to the main screen.

If the exit button is pressed, the entry is confirmed and goes up one level in the menu structure.



Toggles the R200i display on and off.



Depressing the pre key ensures that the R200i is being addressed.

Note: A small coloured LED will momentarily illuminate below the source key that is currently being addressed by the remote controller. (Pre, CD or Tun)



Depressing buttons 1-5 will select the Balanced Input and Unbalanced Inputs 1-4 respectively.



Depressing this button accesses the R200i menu structure.



Depressing these buttons scrolls menu options up and down within the menu structure.



Depressing this button progressively exits from the menu structure towards the default screen.

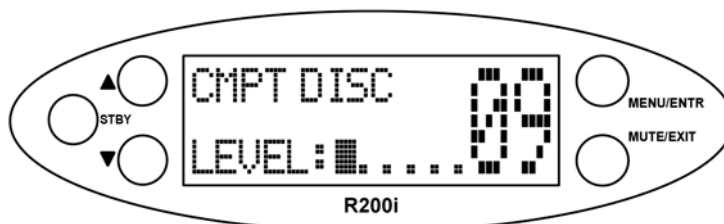
9

Interacting with Your R200i

Default Screen

The Perreaux R200i gives you complete access to all menu parameters via the interactive front panel display.

The five push buttons, accessible within the elliptical display area, allow “one-touch” access to the following functions:



- ▣ Volume up Depress the ▲ button.
- ▣ Volume down Depress the ▼ button
- ▣ Menu Depress the “MENU/ENTR” button
- ▣ Standby Depress the “STBY” button
- ▣ Mute Depress the “MUTE/EXIT” button

Menu Screen

By depressing the “MENU/ENTR” button once, the user has access to the R200i menu options. They are:

- ▣ Input select
- ▣ Preamp setup
- ▣ Display setup
- ▣ System setup
- ▣ Diagnostics



Depressing either the ▲ or ▼ buttons gives full access to the menu options above.

The ↑ and ↓ arrows within the vacuum fluorescent display (VFD), indicate the direction you can navigate within the menu structure.

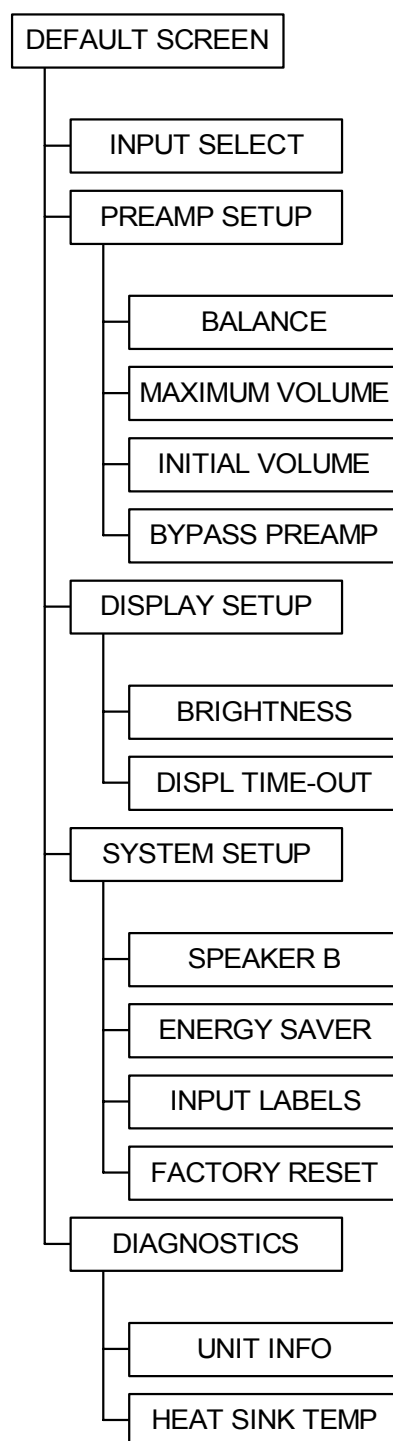
The ▶ arrow within the VFD indicates which menu option is currently selected. To access the menu option against the ▶, depress the “MENU/ENTR” button once.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

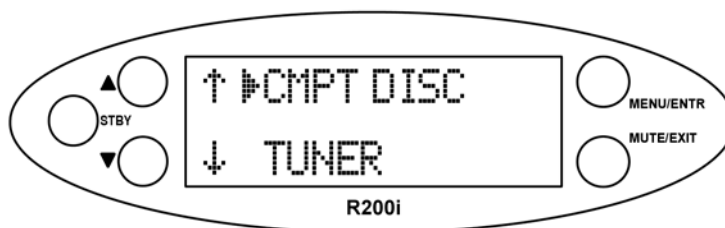
User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Menu Overview



Input Select



The factory default input is Compact Disc (CMPT DISC).

If you are viewing the screen as pictured above, depressing the ▲ button will select the Balanced Input. Depressing the ▼ button will progressively select Tuner, Tape and VCR inputs. These are the factory default input labels and can be renamed.

- **Balanced** Balanced Input factory default label
(refer Chapter 5 “Rear Panel Functions” and consult items 13 & 14).
- **Cmpt Disc** Unbalanced Input 1 factory default label
(refer Chapter 5 “Rear Panel Functions” and consult item 7).
- **Tuner** Unbalanced Input 2 factory default label
(refer Chapter 5 “Rear Panel Functions” and consult item 8).
- **Tape** Unbalanced Input 3 factory default label
(refer Chapter 5 “Rear Panel Functions” and consult item 10).
- **VCR** Unbalanced Input 4 factory default label
(refer Chapter 5 “Rear Panel Functions” and consult item 9).

Note: The input labels are arbitrary and can be reassigned. For more on this, please access the “Input labels” sub-menu within the “System Setup” menu.

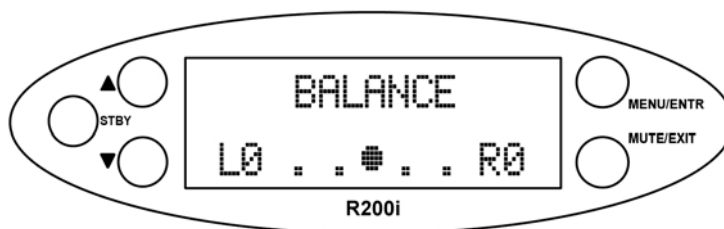
To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Preamp Setup

Balance Control



The default setting is no left or right channel bias.

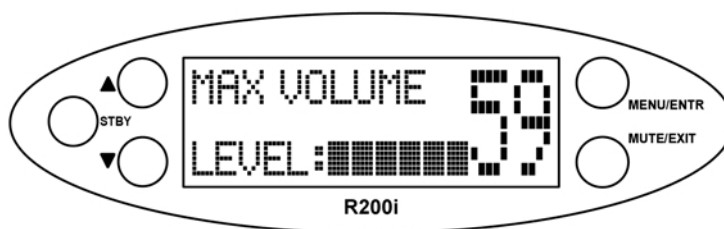
If you are viewing the screen as pictured above, depressing the ▲ button will progressively attenuate the right channel. Depressing the ▼ button will progressively attenuate the left channel.

To back up the menu structure towards the default screen, depress the "MUTE/EXIT" button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Maximum Volume



The default setting is 59.

This function works to protect the connected speaker load from possible damage due to application of excess power. This can prove useful during special events or in the event that the audio system is being enjoyed by those who are unfamiliar with the capability of the R200i in relation to the connected speaker load.

Depressing the ▲ button progressively raises the maximum volume level towards the hardware maximum of 59. Depressing the ▼ button progressively lowers the maximum volume level towards the hardware minimum of 0.

Note:

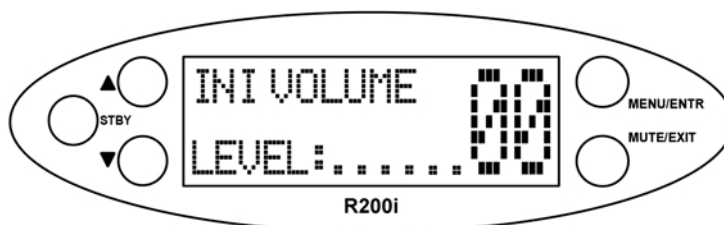
No overlap is allowed with the initial volume setting.

To back up the menu structure towards the default screen, depress the "MUTE/EXIT" button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Initial Volume



The factory default is 0.

Depressing the ▲ button progressively raises the initial volume level towards the hardware maximum of 59. Depressing the ▼ button progressively lowers the initial volume level towards the hardware minimum of 0.

Note:

No overlap is allowed with the maximum volume setting.

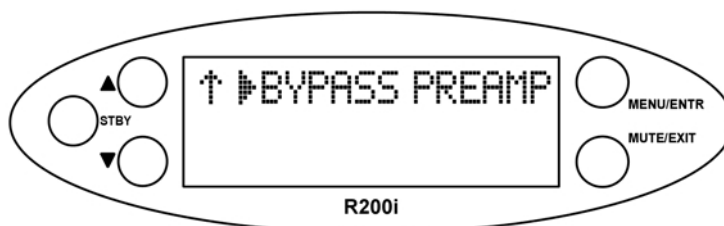
The volume level of the amplifier changes to the level being adjusted, so it is possible to set this volume dynamically.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

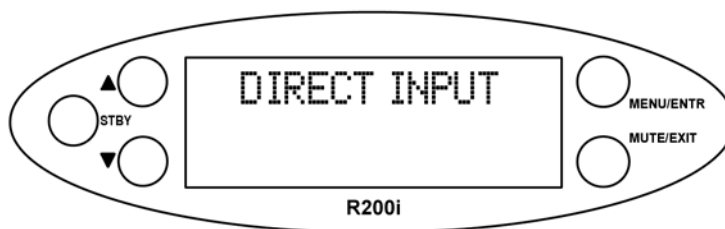
Bypass Preamp



This option allows you to bypass the internal preamplifier and operate the R200i as a power amplifier only. This can easily be achieved via the internal software. Under bypassed conditions, Unbalanced Input 4 (Direct In) will provide line level input directly to the R200i power amplifier. Please refer to Chapter 5 “Rear Panel Functions” and consult the “Unbalanced Input 4 (Direct In)” section.

When you are in the screen shown above, depressing the “MENU/ENTR” button will put the R200i into direct input mode.

When the amplifier has it’s preamplifier bypassed, the words DIRECT INPUT will continuously be displayed.



Caution!

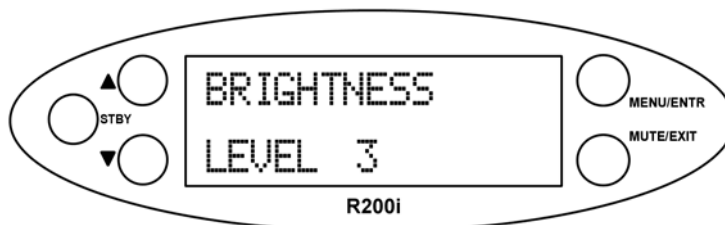
The clipping limiting protection functionality of the R200i is effective **ONLY** when it is used as an integrated amplifier. The clipping limiting protection will **NOT** be present when used in DIRECT INPUT mode, but will provide a warning.

To revert to normal use, reselect the “Bypass Preamp” submenu option from the “Preamp Setup” menu.

User settings are stored in non-volatile EEPROM.

Display Setup

Brightness



The default setting is 3.

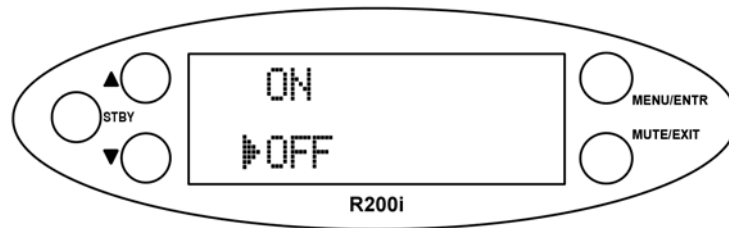
Depressing the ▲ button progressively raises the VFD brightness level towards the hardware maximum of 4. Depressing the ▼ button progressively lowers the brightness level towards the hardware minimum of 1.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Display Timeout



The factory default setting is OFF.

If you are viewing the screen as pictured above, depressing the ▲ button will activate the display timeout feature.

When the display timeout feature is active, the R200i display will automatically black-out after 20 seconds of inactivity in the default screen.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

System Setup

Speaker B



The factory default setting is OFF.

If you are viewing the screen as pictured above, depressing the ▲ button will activate the Speaker B function.

When the Speaker B feature is on, speaker binding posts A and B are internally coupled at the power amplifier board.

Please refer to Chapter 5 “Rear Panel Functions” and consult the “Speaker B Binding Posts” section.

Speaker B binding posts can be used for two purposes:

- They can be used to control an auxiliary set of speakers (typically controlling a pair in a separate room).

- Alternately, they can be used for speaker bi-wiring applications. (If Speaker B is selected).

As a guide, when connecting speakers in parallel, use this equation to work out the impedance the amplifier sees:

$$Z_{\text{total}} = \frac{1}{\frac{1}{Z_A} + \frac{1}{Z_B}}$$

where: Z_{total} = impedance amplifier sees
 Z_A = impedance of speaker A
 Z_B = impedance of speaker B

For example:

$$Z_{\text{total}} = \frac{1}{\frac{1}{8} + \frac{1}{4}}$$

$$Z_{\text{total}} = 2.67\Omega$$

In addition to the above, please consult Chapter 11 “Maximising System Potential” on matching amplifier and speaker ratings.

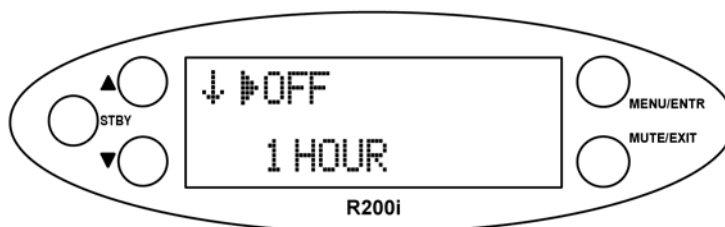
Note: If attaching speakers less than 8Ω (e.g. 4Ω) to speaker A and/or speaker B (therefore amplifier sees about 2Ω), one must remember that the amplifier is rated at 200W into 2Ω . Please refer to Chapter 18 “Specifications”.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Energy Saver



The factory default setting is OFF.

If you are viewing the screen as pictured above, depressing the ▼ button will activate the energy saving feature to one of the selected options.

If there has been no user activity within the time specified, and the energy saver feature is active, the R200i will automatically move into standby mode after the set time has elapsed.

Unit time out options are:

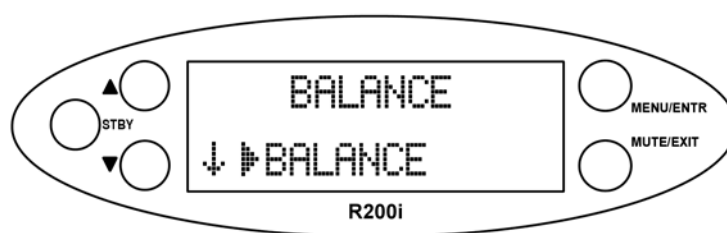
Off, 1 Hour, 2 Hours, 4 Hours, 8 Hours, 12 Hours, 1 Day, 2 Days.

To back up the menu structure towards the default screen, depress the "MUTE/EXIT" button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Input Labels



The factory default settings are:

Balanced Input	Balanced
Unbalanced Input 1	Cmpt Disc
Unbalanced Input 2	Tuner
Unbalanced Input 3	Tape
Unbalanced Input 4	VCR

Each input can be assigned a label from the following list below:

Balanced
Cmpt Disc
Tuner
Tape
VCR
Laser Disc
SACD
Phono
Radio
USB
DVD
DVD A
Cmpt Disc 1

Cmnt Disc 2
 Video 1
 Video 2
 Aux 1
 Aux 2
 Computer 1
 Computer 2
 Tape 1
 Deck 1
 Satellite
 Cable
 VCD

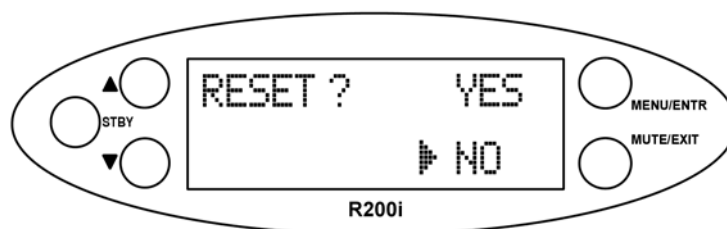
To assign one of the input labels above to an input, select the input required by pressing the “MUTE/ENTR” button until the desired input is selected. Use the ▲ and ▼ buttons to select the input label desired and then press “MENU/ENTR” or “MUTE/EXIT”.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

User settings are stored in non-volatile EEPROM.

If no user activity is recorded within 10 seconds, the program will automatically revert to the default screen.

Factory Reset



When you access this screen, the default option will always be NO.

If you are viewing the screen as pictured above, depressing the ▲ button will select the factory-reset function. Depressing the “MENU/ENTR” button will activate the factory-reset function.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

Note: When the factory reset option is activated, all user settings are replaced by factory settings and stored in non-volatile EEPROM.

Factory Reset Settings

Input select

Unbalanced Input 1 (“CMPT DISC”)

Preamp setup

Balance	No left or right channel bias
Maximum volume	59
Initial volume	0
Bypass preamp	NO

Display setup

Brightness	3
Display timeout	OFF

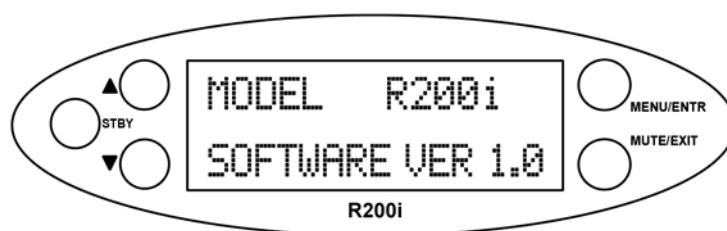
System setup

Speaker B	OFF
Energy saver	OFF
Input labels	
<i>Balanced Input</i>	“BALANCED”
<i>Unbalanced Input 1</i>	“CMPT DISC”
<i>Unbalanced Input 2</i>	“TUNER”
<i>Unbalanced Input 3</i>	“TAPE”
<i>Unbalanced Input 4</i>	“VCR”

When the R200i is being reset, the display will state the words “Resetting Unit”.

Diagnostics

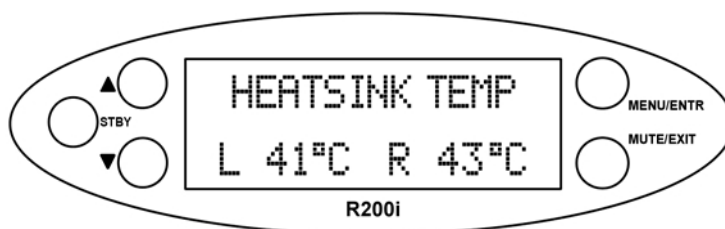
Unit Info



The unit info screen allows the user to view the model and software version being employed internally.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button.

Heat Sink Temp



Selecting this option will display the actual heat sink temperature in °C. The heat sinks will operate to a maximum of 85°C, at which time the unit will protect itself.

For more information, please refer to Chapter 3 “Protection Functions” and consult the “Over Temperature Protection” section.

Note: In this mode, the display will not resort back to the default screen after 10 seconds.

To back up the menu structure towards the default screen, depress the “MUTE/EXIT” button. Alternately depress the “MENU/ENTR” button to go directly to the default screen.

10

Upgrading Your R200i

The Perreaux R200i is a very high quality integrated amplifier. Thousands of hours of engineering development time have gone into making the unit as capable as possible. In time, it's possible that our engineers develop new and exiting software enhancements for your product. In the event that this should occur, please be aware that your Perreaux R200i has been designed to be fully software upgradeable.

For more information on this, please contact your Perreaux dealer.

Optional Modules

The R200i has been designed to accept two optional electronic modules.

Authorised personnel must install these within the R200i.

Note:

The two modules cannot be fitted or operated concurrently.

Phono Stage

When this high quality option has been fitted to the R200i, the user will be able to enjoy direct access to their turntable via the amplifier.

For more information on this option, please contact your Perreaux dealer.

Universal Serial Bus (USB)

Perreaux engineers have developed a USB module incorporating high quality digital to analog converter (DAC) components. When this module is fitted, the user has the ability to stream audio directly from a computer hard disc drive to the amplifier.

The USB option is software selectable. The selection parameters are stored in non-volatile EEPROM.

For more information on this option, please contact your Perreaux dealer.

1 1 Maximising System Potential

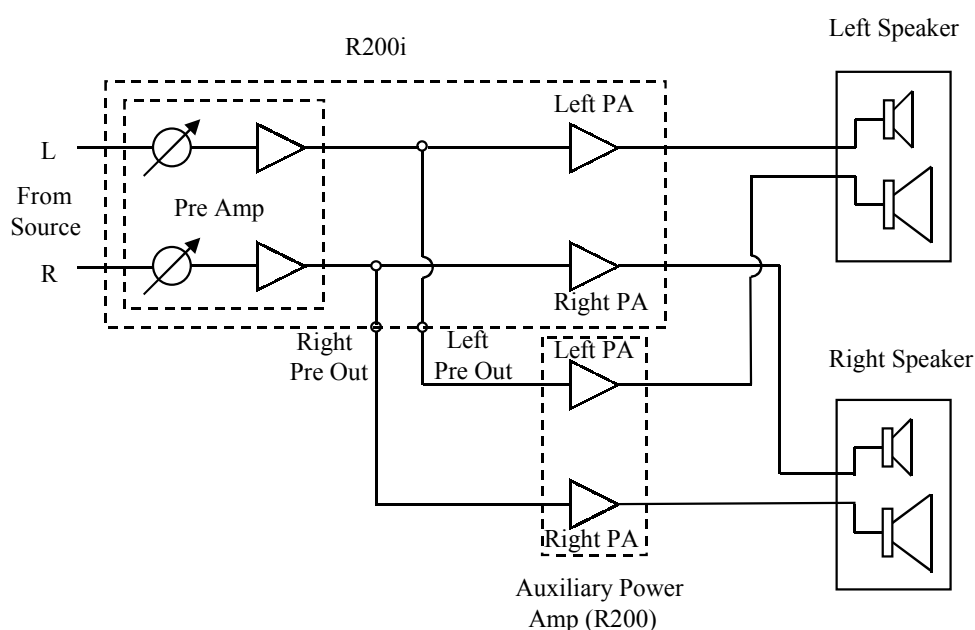
Interconnects and Speaker Cables

An often-ignored area in high fidelity systems is the cabling connecting the various components. Interconnect leads should be high quality cable with substantial terminations. Gold plate is inherently resistant to corrosion, and an excellent conductor. The presence of corrosion induces distortion and poor conductivity will seriously interfere with sound quality. Terminations must plug snugly into sockets to maintain maximum conductivity and to avoid annoying earthing problems.

Speaker cabling is equally critical. Use only solidly constructed cable of high purity copper or silver content. Again, gold plated terminations are recommended, of the spade or banana plug type. Use cables of equal length and as short as possible to maintain uniform electrical resistance at the lowest possible level. If your amplifier is closer to one of your speakers than the other, avoid coiling the longer lead as this can create inductance, with the potential of reduced high frequency performance. Keep all connections clean, firm and tight. The traditional adage that a chain is only as strong as its weakest link most certainly applies to audio systems.

Bi-amping

Bi-amping uses two similarly powered amps, with exactly the same input sensitivity so that, when the same input signal is provided to each of them, the output level will be exactly the same. This can often be done with an integrated amp connected to the tweeters and a power amp to the woofers etc, as it spreads the power requirement between the two amplifiers. It can also be done using dedicated power amplifiers. Bi-amping can achieve greater control, dynamics and resolution than if you try to run everything from a single stereo amplifier.



Balanced Interconnects

The use of the high quality Perreaux balanced signal inputs and outputs can have the effect of cleaning up hums, buzzes, radio frequency interference (RFI) and general extraneous rubbish that can enter an audio system. A balanced signal input system operates on the principle of differential amplification. The positive and negative inputs are contrasted against one another and the difference between them is amplified. Noise entering the system is imposed equally on the positive and negative signals and therefore will not be amplified, as no differential voltage exists.

The term used to describe the quality of the effect is called Common Mode Rejection Ratio (CMRR). CMRR is an equipment and system specification, which describes how well unwanted common mode signals are counteracted when used in conjunction with balanced connections. CMRR action prevents the egress and build up of extraneous hum; buzzes and RFI when analogue signals are conveyed down cables and between equipment powered from different locations and is widely used in professional audio applications.

The rejection ration achieved is described in minus dB. The CMRR of a system follows the formula $20\text{Log}(V_{\text{output}}/V_{\text{input}})$. In other words a CMRR of -40dB means that all garbage entering the unit will be made 100 times smaller. The piece of equipment with poorest CMRR will effectively determine the hum and RFI level of the system. Effectively the weakest link in the chain. Highest quality audio systems should quote a CMRR figure of -80dB or better.

For optimal listening pleasure, we recommend using balanced signal inputs

Positioning Ancillary Equipment

Positioning of your source equipment (tuner, video, disc, tape, record, decks) is important. To avoid airborne frequency peaks, place them well away from your loudspeakers and not in the corners of your listening area.

Loudspeaker Placement

Loudspeaker placement is a controversial issue; suffice to say that room corners are generally the worst situation. Everything which constitutes your listening area, including the materials used in its construction, will affect the sound itself and the sound stage created. Equally, you have to live with your system and therefore compromises will have to be made in line with your particular priorities. The best advice we can give concerning the choice of loudspeakers is, establish clearly in your mind your requirements; listen to many makes and models, and if at all possible audition your preferred choice in your own listening area and trust your own ears.

Matching Amplifier and Speaker Ratings

When matching speakers to amplifier wattage – ordinarily, the amplifier should have a continuous RMS output power rating the same as or higher than the speakers at the same impedance rating. For example, 200W_{rms}, 8Ω speakers driven by a 200W_{rms} at 8Ω amplifier is not as ideal as 100W_{rms}, 8Ω speakers driven by a 200W_{rms} at 8Ω amplifier.

Note:

200 Watts is twice as loud as 20 Watts not ten times as loud.

Due to the protection functionality designed into the R200i, this tradition no longer needs to be adhered to. The R200i is suitable to use with speakers that have power handling greater than it's continuous rated output and in fact, would greatly benefit from speakers that can handle the output peaks the R200i can deliver.

For more information, please refer to Chapter 3 “Protection Functions” and consult the “Clipping Protection” section.

Caution!

The clipping limiting protection functionality of the R200i is effective **ONLY** when it is used as an integrated amplifier. The clipping limiting protection will **NOT** be present when used in DIRECT INPUT mode, but will provide a warning.

Perreux equipment is designed with substantial headroom built in – that is, the reserve necessary to reproduce musical peaks without clipping.

Final Thoughts

High fidelity systems are an investment deserving of careful thought and personal time. Your preferences, priorities and constraints will dictate the parameters of your purchase, your ears will tell you what is the right choice for you. Our experience tells us that the bitterness of dissatisfaction lingers long after the fragrance of cheap price is forgotten, hence our use of the term – investment.

12

The Power MOSFET

Today with the vast number of technical achievements occurring around the world, many discoveries are overshadowed or obscured by some that may appear more important to the general media. One such discovery of importance, to the audiophile at least, is that of the power MOSFET device.

The MOSFET

The field effect transistor (FET) and then the MOSFET transistor have been around for a number of years, but only as a small signal-handling device, mostly employed in radio tuners and communications equipment. The electrical advantages of these have long been realised by manufacturers of hi-fi. If only they could be made to handle large amounts of power – what a benefit to the audiophile.

The term power MOSFET describes a device capable of handling reasonably large amounts of electrical energy as an amplifier itself – hence power. MOSFET stands for “Metal Oxide Silicon Field Effect Transistor”, this in turn means that the device is constructed of Silicon. Similar to a transistor – but the part that controls the power flow through the device is insulated from the remainder of the device by a metal oxide insulating layer and the controlling of the power is achieved by the development of an electrostatic field between the controlling element and the conducting element.

In a transistor, the control of the power through the device is effected by the application of a smaller, but nevertheless, significant amount of power to the controlling element. Whereas in the power MOSFET, the control of the power through the device is affected by the application of a very small and very insignificant amount of power to the controlling element – in fact, only the amount required to create a small electrostatic field. This makes the operation of a power MOSFET similar to that of a valve.

Other Field Effect Devices

There are basically three types of power field effect device, they are: the junction FET, the vertical FET and the power MOSFET, all of which were independently developed by three different hi-fi equipment manufacturers in Japan and all were major technological breakthroughs in their own right.

The first of these was the junction FET, the second the vertical FET and lastly, the power MOSFET. Although all these devices are vast improvements over power transistors, the junction FET and vertical FET cannot compare with the power MOSFET, in terms of simplicity of the supporting driver stages and power supply requirements.

The power MOSFET, though having similar characteristics to the valve, can be divided into 2 types of polarities of device – P-channel and N-channel. Broadly speaking only one of these types exists in valve

operations. This means that complementary power MOSFETs – P and N channel – can be used in an audio output stage providing greater linearity of operation than can be achieved with valves. In addition, further advantages over the valve include their much smaller size, no filaments and greater reliability with reduced vulnerability to physical damage.

Audio Applications

When used in an audio power amplifier, the advantages of the power MOSFET over the power transistor are much more difficult to describe and would require greater complexity than can be gone into here. However, they can be summarised as follows – the most important point is that the power MOSFET has a negative temperature coefficient whereas the power transistor has a positive temperature coefficient. This means that when a power transistor is handling power it heats up further and consumes more power. This characteristic, called thermal runaway, will result in the destruction of the power transistor if some means is not provided to control it. The power MOSFET on the other hand, although heating up due to the power flow through the device, does not continue to draw more and more power just because its temperature has risen. But in fact has a tendency to stabilize itself – provided adequate heat sinking is available to remove the heat generated during normal operation. Incidentally this is less heat sinking than is required for a similarly power rated standard transistor.

Secondary Breakdown

Then there is the appearance of secondary breakdown and ‘hot spots’ in a power transistor. This is related to thermal runaway. In order to understand this, one must imagine that the chip silicon inside the power transistor is in fact many smaller transistors connected in parallel. Now, if one of these smaller transistors or a spot on the chip has a greater gain (or amplification factor) than the rest, then that spot will heat up faster and to a greater temperature than the remainder of the transistor chip. This means that whole power dissipation capability of the transistor has been severely reduced and is a major cause of these unexplained output stage failures in large power amplifiers, i.e. over $80W_{rms}$.

The power MOSFET is largely immune to this problem because if a small part of this chip has a higher gain than the rest then its temperature will rise slightly causing that spot to reduce gain and hence stabilization occurs. The power is more evenly distributed throughout the chip and therefore reliability is maintained.

It can be seen from the above that the transistor power amplifier has to have a much larger margin of power dissipation capability and heat sinking in its output stage than the power MOSFET amplifier.

The transistor power amplifier of $100W_{rms}$ output into 8Ω can require a driver stage capable of delivering 10W at 1kHz and up to 20W at 20kHz into the input of the output device. The power MOSFET only requires a maximum of 0.01W so a major saving in driver stage componentry and associated noise and distortion can be eliminated.

High Frequency Response	Probably, from the sonic quality point of view, the most important improvement is the power MOSFETs vastly superior high frequency response. A large proportion of the power transistors used in modern hi-fi amplifiers start to show a decline in efficiency from 10kHz upwards. The efficiency of the power MOSFET does not start to decline until about 2MHz and is only down 3dB at 30MHz. This is due to the energy transfer being accomplished with minority charged carriers in the power MOSFET as opposed to majority charged carriers within the transistor, and results in hole storage at high frequencies causing the transistor to dissipate increasing amounts of energy within itself as the frequency increases. Further sonic degradation of the transistor power amplifier occurs due to hole storage of the output transistors. As the output distortion increases with increasing signal frequency, it is obvious that the distortion products in the negative feedback path also increase. Because the negative feedback system is employed to reduce distortion by cancellation, at high frequencies it causes even more power to be consumed within the output transistor just to cancel out the distortion. Transient intermodulation (TIM) is also more prevalent in transistor power amplifiers because the signal transition in time is relatively slow. This means the distortion products in the signal of, say, a fast transient will not travel through the negative feedback system into the output stage fast enough to cancel at exactly 180 degrees out of phase – resulting in the amplifier being overloaded. This is not possible in power MOSFET amplifiers.
Other Advantages	Further sonic improvement is achieved in power MOSFET amplifiers due to reduced crossover distortion, as power MOSFETs have a sharper “knee” than transistors at cut-off and provide a greater linearity when crossing over from one device to the other. Because crossover distortion is a major cause of odd order harmonic distortion in transistor amplifiers (be it small, i.e. 0.05% total) they are usually considered to sound more harsh than valve amplifiers which generally have large amounts of even order harmonic distortion up to 5% and are thought to sound more pleasant and musical. However, which is more accurate? The valve amplifier at 5% THD with a pleasant sound and even order harmonics; the transistor amplifier with 0.05% THD with relatively unpleasant sound with even and odd harmonic output, or a power MOSFET amplifier with 0.02% THD and relatively pleasant even order harmonic distortion? In our opinion, the power MOSFET amplifier because the THD generated is virtually all second or even order harmonic distortion total 0.02% or less at 20kHz and down to 0.004% or less at 1kHz. It can be seen that power MOSFETs are here to stay and that there are major sonic and electrical improvements to be had over other output devices.

13

Frequently Asked Questions

Where is Perreaux based?

Perreaux is based in Auckland, New Zealand.

Who owns Perreaux?

Perreaux is jointly owned by Martin & Vicki van Rooyen.

How long has Perreaux been in business?

The first Perreaux product was released in 1974. For more detailed discussion, please visit our website www.perreaux.com.

How often do you introduce new products?

As satisfied Perreaux owners are well aware, we are never in any great hurry to bring new products to the marketplace. Refinement of musical performance is not a process to be rushed or neatly scheduled to coincide with important events. We do not believe in the widespread practice of minor revisions.

We take pride in the fact that our products have a very long life. Historically, Perreaux models have a lifespan of 3-5 years. By not constantly introducing new models, we are better positioned to develop new products. This also acts to protect your investment in Perreaux, by ensuring that the model that you purchase will remain current for many years to come.

Because we take our time developing a product, we can introduce products that are real improvements and are ahead of their time for many years to come.

Do you have any upgrade policy like some manufacturers?

We do not have an official policy as such, but when we design new products or discover potential significant improvements to existing products, we always investigate the possibility of offering them as upgrades to current owners.

Can I buy a Perreaux directly from the factory?

We do not to sell directly to the public. Direct selling undermines the substantial investment in product, training and advertising that our distributors and their appointed retailers have made in establishing the Perreaux product in their region.

If I live in a country without any Perreaux distributors, where can I buy your products?

Our website contains international Perreaux distributor details. In the event that your country is not directly represented, please feel free to make contact with any of the distributors listed, in order to ascertain whether they can be of any assistance you. Please understand that service and warranty is the sole responsibility of the distributor/dealer who supplies the product. Any service or modification carried out by an unauthorised service center will immediately void the warranty.

What about warranty and service if I import my Perreaux product from another country?

Service under warranty is the sole responsibility of the distributor/dealer who supplies the product. Please do not return the product to our factory with a warranty claim unless authorised in writing by the dealer and having fulfilled the requirements of Chapter 16 "Warranty Information and Obtaining Service".

Can I change the voltage of my Perreaux if I move to another country?

The end user is unable to do this, however if the need arises, the Perreaux distributor could undertake this work. You should expect to pay for this service.

Why are Perreaux amplifiers so heavy?

The heart of any amplifier is the power supply. The stiffness of the power supply defines its ability to deliver power into speaker loads.

A stiff, high-current, linear power supply means heavy transformers, large heat sinks, heat, expensive parts and costly assembly. This is why Perreaux products are heavy.

Which speakers do you recommend for your amplifiers?

Because Perreaux amplification is designed to be utterly neutral with no sonic character of its own, any high quality equally neutral speaker that is agreeable to your room, musical tastes and general sonic preferences will be a good match.

Which cables do you recommend for your products?

Once again, Perreaux basic philosophy is one of sonic neutrality. We prefer to leave interpretation to the musicians and singers. Therefore, you should not need a cable with a particular "sound" of its own to balance or "equalise" your system.

Take the advice of your authorised Perreaux dealer in selecting interconnects and loudspeaker cables for your Perreaux equipment.

Why do you supply a standard AC power cord with your products rather than a High End cord?

High End power cords are expensive and should be selected based on personal preference, specific electrical conditions in your area, etc. We do not believe that it is fair to force our clients to pay for a very expensive cable that we choose for them.

14

Care and Maintenance

	The R200i has been designed to provide many years of trouble free enjoyment. It's important to keep the exterior of the unit clean and to periodically ensure that the air-cooling grills remain clear from obstruction.
Note:	Please place the unit in standby and remove the cord set from the rear of the amplifier before attempting to clean your R200i in the manner described below.
Cover	The cover is made from a high quality acrylic material and care must be taken to prevent scratching this surface. To clean the cover, simply wipe with a very soft dry cloth.
Note:	Never use liquids on this surface. Never use abrasives.
Front Panel and Remote	The front panel and remote feature high quality electroplate finishes. There are two finish colours and each must be cleaned differently. Satin Chrome Finish Front Panel and Remote Controller To remove finger marks and dirt on satin chrome finishes, lightly rub the surface with a soft cloth containing a very small quantity of isopropyl alcohol (methylated spirits) on it.
Note:	Never use abrasives.
	Black Chrome Finish Front Panel and Remote Controller To remove finger marks and dirt on black chrome finishes, lightly rub the surface with a very soft cloth containing a small quantity of silicone cream furniture polish (Neopol) on it.
Note:	Never use abrasives.

15

Faultfinding Your R200i

Cause and Elimination of Hum

Hum is a particularly annoying form of noise in any high fidelity system and at some time has been experienced by many of us.

Hum may result from a number of different situations and to make matters worse maybe caused by a seemingly illogical combination of circumstances.

One or more of three specific causes creates hum in the system.

Induced Hum

Hum can be induced into the system from one or more sources and is generally associated with the radiation of noise from one system into another.

Hum and noise can be radiated from any object or system involving AC voltage and current such as power supplies in amplifiers, motors, switching equipment etc. All of these may be found in your hi-fi system or within your own home.

Hum may be induced into any part of the system, so there are no specific instructions that can be given which will offer a guaranteed cure. A good practice to adopt is to keep low-level signal equipment such as phono systems, tuners etc. well away from high-level signal equipment such as power amplifiers. Alternatively, careful designs must be employed to negate these effects on low-level signal equipment (such as the R200i onboard phono module option). Another good practice to adopt is to keep all signal leads away from power leads.

The practice of neatly tying excess leads together for a tidy looking installation should be resisted, as this could be the cause of induced hum in the system.

Earth Loops

Earth loops are a particularly annoying cause of hum in the system. Earth loops are created by mains frequency current flowing in the screen of signal leads and becomes apparent with the lack of adequate earthing between the various pieces of equipment making up the hi-fi system. This is further compounded by the fact that the equipment earthing considerations vary between different manufacturers and countries.

Perreaux products used with equipment manufactured by other manufacturers may cause an earth loop situation, but Perreaux products used with other Perreaux products will not cause an earth loop situation provided the following precautions are observed:

Identifying and Isolating Problems

- The entire hi-fi system must be connected to the same mains/line power outlet. This will ensure that each piece of the system shares the same earth or ground. This rule applies to all installations of all brands of equipment. A preamplifier or power amplifier may be operated from an extension cord plugged into the same mains/line outlet.
- When a piece of equipment is supplied with a three pin mains/line supply lead all three pins must be connected in the correct fashion - see your dealer if in doubt.
- Check all interconnecting signal leads for good connections, both internal connections and firm contact with the sockets. While the centre pin may make firm contact, it is very important that the outer contact is also firm.
- Never remove the earth/ground wire from the mains/line supply of any piece of equipment. This could be hazardous.

Broken Earth Connections

This is a common cause of hum and noise in the system. In many instances, the only way to eliminate the possibility of hum problems arising through a broken earth connection somewhere in the system is to physically check every connection.

When experiencing a problem, such as one channel not working, or a noise in one channel, it is good practice to adopt a method of isolating the problem to a specific item or area. This practice will assist in diagnosing, curing, or at least advising your technician of the problem and result in a saving of time, money and perhaps frustration.

A logical approach to isolating the probable cause of the problem is to start at the loudspeakers and work back to the music source, eliminating each piece of equipment in turn.

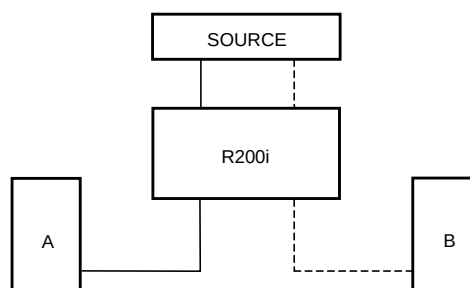
Caution!

Observe precautions regarding volume control settings. Please make all changes at minimum volume setting. Only increase the volume after the connections have been made.

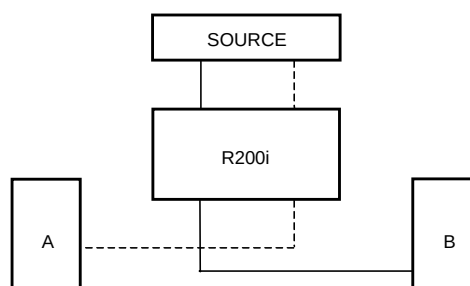
Check that the entire system is connected in the proper manner and that the mains/line supply is connected and switched on.

For clarity during this section, we have labeled one loudspeaker 'A' and the other loudspeaker 'B'. In this example, loudspeaker 'A' appears faulty.

Initial system connections



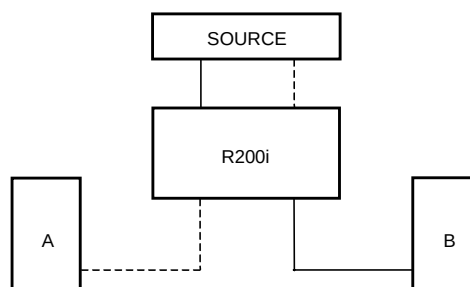
Step 1 – Loudspeakers



Change the loudspeaker leads from one loudspeaker to the other. If the fault remains in loudspeaker 'A', then loudspeaker 'A' is at fault, go no further.

If the fault now appears in loudspeaker 'B' then the problem lies further up the line. Move on to step 2.

Step 2 – Loudspeaker Leads



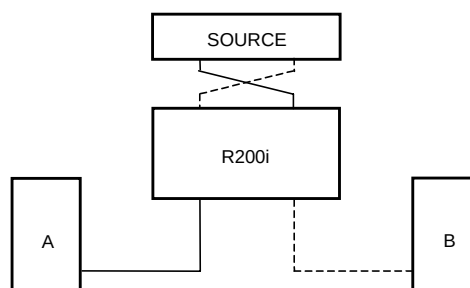
Change the loudspeaker leads completely from left channel to right and from right channel to left by now swapping them at the amplifier output. If the fault now appears in loudspeaker 'B', then that loudspeaker lead is at fault, go no further.

If the fault appears in loudspeaker 'A' then loudspeaker leads are OK. Move on to step 3.

Caution!

Restore the loudspeaker leads to their original connections at both ends.

Step 3a – Input Sources (Channels)



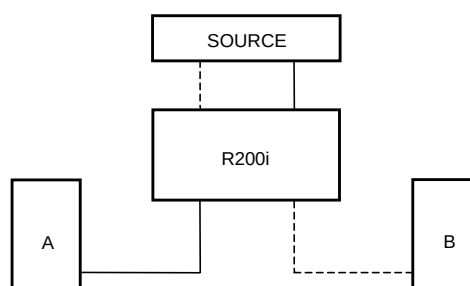
Change the input plugs on the rear of your amplifier, as follows: Change each input source in turn by swapping the plugs left to right and right to left. If the fault changes to loudspeaker 'B' on any one of the selected inputs, then that particular input source is possibly at fault. Move on to step 3b.

If the fault stays in loudspeaker 'A', then it is probable that the fault may exist within the amplifier.

Caution:

Changing of any connectors must be carried out at a minimum volume setting. Only increase the volume after the connections have been changed.

Step 3b – Input Sources (Interconnects)



Change the interconnect leads completely from left channel to right and from right channel to left by now swapping them at the source component's output. If the fault stays in loudspeaker 'B', then the interconnect lead is at fault, go no further.

If the fault appears in loudspeaker 'A', then the interconnect lead is OK.

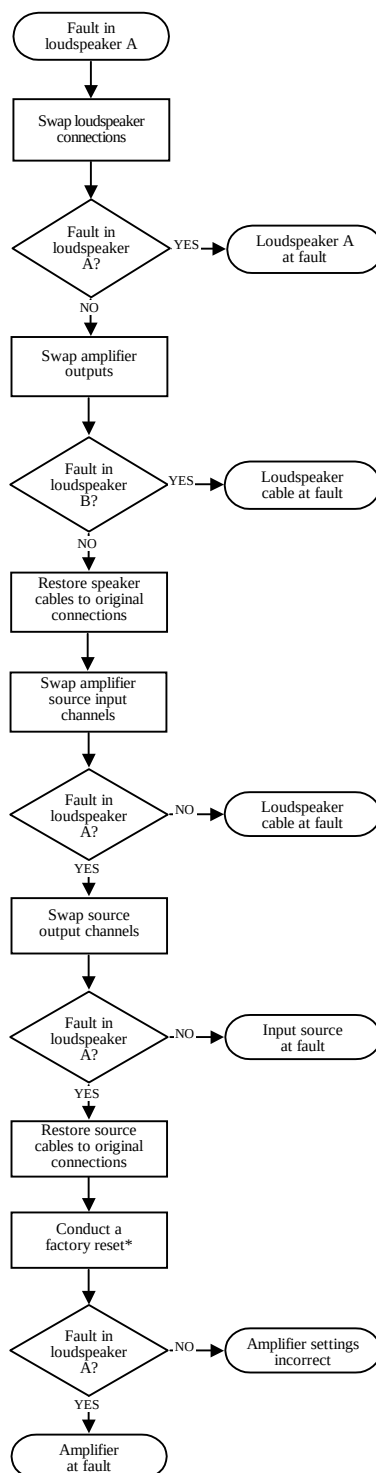
Caution!

Changing of any connectors must be carried out at a minimum volume setting. Only increase the volume after the connections have been changed.

Should the fault prove to be in the amplifier it will be necessary to determine where the fault actually lies. Most of this has been done, for instance, you now know what input/s and what channel is affected. This information will assist your Perreaux dealer or service person when or if any service is required.

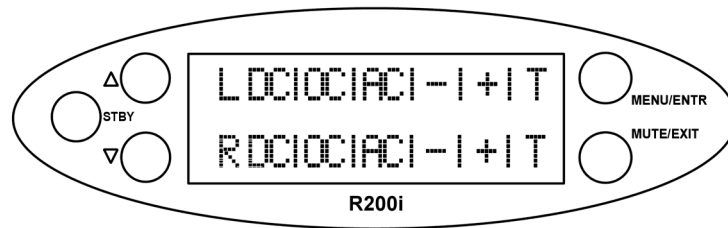
Faultfinding Flowchart

If the apparent fault is noise in one or both channels and has been localised to the amplifier, it will be necessary to determine whether or not the noise increases with the volume control; whether or not the noise exists when no input at all is connected to the amplifier; and what type of sound the noise is. For example, low frequency humming noise or high frequency hissing noise. This information will also assist your service person in making repairs or adjustments.



*Please refer to Chapter 9 "Customising Your R200i" and consult the "System Setup" section.

Description of Amplifier Faults



This diagram details all the faults that can be displayed on the R200i. The faults are channel specific. The top line shows:

Left channel:

- DC offset fault
- Over current fault
- Internal AC supply fault
- Negative DC rail fuse fault
- Positive DC rail fuse fault
- Over temperature fault

The bottom line refers to right channel faults.

For more information, please refer to Chapter 3 “Protection Functions”.

Note:

Over current faults ARE user serviceable.

Over temperature faults ARE user serviceable.

DC offset faults are ARE user serviceable, by correcting the source of the DC offset at the input terminals to the R200i.

Internal AC faults MAY be user serviceable, please refer to Chapter 3 “Protection Functions” and consult the “Internal AC Supply Protection” section.

Positive and Negative DC rail faults are NOT user serviceable.

16

Warranty Information and Obtaining Service

1 Year Limited Warranty	The Perreaux R200i is warranted to be free from defects in material and workmanship under normal use to the original purchaser for a period of 1-year (365) days from the date of purchase from an authorised dealer or distributor.
5 Year Extended Warranty	For a free extended warranty on your Perreaux R200i, please complete and return the “Extended Warranty Registration Form” in Chapter 17 along with a copy of the original purchase invoice to: Perreaux Industries Ltd PO Box 47413 Ponsonby Auckland New Zealand Acceptance of this form by Perreaux Industries will extend the original warranty from one (1) to five (5) years from date of purchase from an authorised dealer or distributor. For more details on the extended warranty, please refer to Chapter 17 “Extended Warranty Registration Form”.
Warranty Transfer	Perreaux Industries Ltd may, at its discretion, allow the warranty on this product to be transferred. Please contact Perreaux on info@perreaux.com requesting a transfer.
Information on the Perreaux R200i Warranty	If during the warranty period the Perreaux R200i exhibits defects in materials and/or workmanship, it will be repaired or replaced, at our option, without charge for either parts or labour. The warranty does not apply to any unit that has been misused, abused or altered. Any unit that is not performing satisfactorily may be returned to your authorised Perreaux dealer or distributor for evaluation. Perreaux Industries Ltd and its authorised distributors and dealers shall not be held liable for any freight or insurance charges. Freight and insurance charges to and from the authorised Perreaux service centre will be the sole responsibility of the owner of the unit. There is no other express warranty on the R200i. Neither this warranty nor any other warranty, express or implied, including any implied warranties of merchantability of fitness, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages.

Note:

In the event that you are experiencing difficulty with the R200i, please as a first step, follow the faultfinding procedures in Chapter 15 "Faultfinding Your R200i". If after following this procedure, you require service, please contact your Perreaux dealer.



17

Extended Warranty Registration Form

Please complete this form and either fax, mail or scan and e-mail it to Perreux Industries Ltd.

Fax: +64 9 815 5981

Mail: Perreux Industries Ltd
PO Box 47 413
Ponsonby
Auckland
New Zealand

E-mail: info@perreux.com



5 Year Extended Warranty Form



Name:	
Address:	
Suburb:	
City:	
Country:	
Telephone:	
E-mail:	
Website:	
Product Purchased:	RADIANCE R200i
Serial Number:	

Please complete this form and either fax, mail or e-mail it to Perreux Industries Ltd.

Fax: +64 9 815 5981

Mail: Perreux Industries Ltd
PO Box 47 413
Ponsonby
Auckland
New Zealand

E-mail: info@perreux.com

Specifications In Brief

The R200i specifications are detailed in brief and then subsequently in more detail. In the detailed version, we attempt to explain the significance of each specification.

Measurements of the R200i reveal excellent results by any standards. Tested at 120V, 220V, 230V and 240V after a 10 minute warm-up period.

Preamplifier Specifications

Preamplifier gain.....	+30dB
Preamplifier attenuation.....	-95dB
Gain resolution.....	2.0 dB steps (linear throughout the range)
Frequency response.....	5Hz – 100KHz ± 0.25 dB
Input sensitivity.....	205mV
Input impedance.....	10K Ω
Input overload.....	3.80V
Rated output.....	1.45V _{rms}
Maximum output.....	3.20V _{rms}
Preamp output source impedance.....	470 Ω
THD.....	Typically 0.003% @ 1KHz
S/N ratio.....	Unbalanced > 95dB Balanced > 95dB
Channel separation/Crosstalk.....	Unbalanced < -70dB @ 1KHz Balanced < -90dB @ 1KHz
CMRR.....	Balanced > 95dB
Audio inputs.....	1 x pair of balanced XLR style inputs 4 x pairs of unbalanced RCA style inputs
Audio outputs.....	1 x pair of unbalanced RCA style direct output 1 x pair of unbalanced RCA style pre output

Power Amplifier Specifications

Rated power.....	200W _{rms} (continuous, per channel, both channels driven into 8 Ω from 20 – 20KHz at < 0.025% THD)
.....	360W _{rms} (continuous, per channel, both channels driven into 4 Ω from 20 – 20KHz at < 0.035% THD)
Frequency response.....	5Hz – 30KHz ± 0.5 dB
THD.....	Typically 0.003% @ 1KHz into 8 Ω Typically 0.004% @ 1KHz into 4 Ω
Voltage gain.....	26dB
Dynamic headroom.....	> 2.0dB
Voltage swing.....	± 80 V _{p-p}
Instantaneous output current.....	36A per channel
Channel separation.....	> 120dB
S/N ratio.....	> 95dB (referenced to rated output)



Damping factor	> 2000
Input sensitivity.....	1.45V _{rms}
Input impedance.....	33K Ω
Output impedance.....	< 0.004 Ω
DC offset.....	< $\pm$ 10mV
Smoothing capacitance	80,000uF (40,000uF per channel)
MOSFETs	6 x Toshiba 2SJ 201-Y 6 x Toshiba 2SK 1530-Y
Driver stage.....	Class A
Output stage	Class A/AB
Audio outputs.....	2 x pairs of speaker binding posts per channel (termed speaker A, B respectively. Speaker pair B can be toggled on or off)

Other Connections

- 1 x IEC AC mains input receptacle
- 1 x Earth ground terminal
- 1 x 3.5mm “mini” jack for master remote input (5 – 12V DC)
- 2 x 3.5mm “mini” jack for slave remote output (12V DC)

Power Consumption

Standby	3.4W
Idle	65W
Maximum.....	800W (at 4 Ω rated output)

Mains Input Voltage

100V, 110V, 120V, 220V, 230V or 240V AC at 50Hz or 60Hz
(Set within the R200i at time of manufacture)

Overall Dimensions

Width	430mm (16.9”)
Height.....	105mm (4.1”)
Depth.....	340mm (13.4”)

Fuse Ratings

Mains input fuses	2 x 2SB slow blow 10A, 100 – 125V (user serviceable)
.....	2 x 2SB slow blow 6A, 200 – 250V (user serviceable)
Internal DC rail fuses.....	4 x 2AG normal acting 6A (NOT user serviceable)

Weight

Net weight.....	14.3kg (31.5lb) (Amplifier only)
Gross weight	17.3kg (38.1lb) (Amplifier, accessories and packing material)

Preamplifier Specifications Explained

Preamplifier attenuation.....	-95dB
Preamplifier gain.....	+30dB
Gain resolution.....	2.0dB steps (linear throughout the range)
Frequency response.....	5Hz – 100KHz ± 0.25 dB

Comments

This is the “standard” specification with which everyone is familiar. Actually “frequency response” is a misnomer. Technically, the specification should be called “amplitude response versus frequency” for it describes how uniform the amplitude or strength of signals of various frequencies is maintained. It is generally thought that a difference of 1dB is the least that can be perceived by the ear. The preamplifier section has been designed to exceed this value by a very comfortable margin.

Input sensitivity.....	205mV
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Comments

There are many ways of specifying “sensitivity”. The numbers indicate the input level required to achieve “rated” output ($1.45V_{rms}$) with the volume control fully advanced. Since the output is sufficient to drive most power amps to their maximum output level, the sensitivity figures indicate the minimum input levels you will need to drive the power amplifier to its full capability. Dividing rated output voltage by input sensitivity rating gives the “gain” of the preamplifier.

Input impedance.....	10K Ω
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Comments

Input impedance defines the “load” that the preamplifier presents to the source that is driving it.

Input overload	3.80V
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Comments

“Input Overload” specifies the maximum signal level that each input circuit can handle without clipping.

Rated output.....	$1.45V_{rms}$ into 10K Ω or better
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Comments

This is the reference output level to which other specifications, such as sensitivity, are referred. Rated output does not indicate the preamplifier’s full capability. This is given by the maximum output, as follows.

Maximum output..... 3.20V into 10K Ω or better
 Pre/Direct output source impedance 470 Ω

Comments

The R200i preamplifier also provides two low impedance, short-circuit protected outputs. Low output impedance is necessary to ensure full-range response when driving lengthy cables between the R200i preamplifier section and any connected power amplifier.

Total Harmonic Distortion (THD)..... Typically 0.005% @ 20Hz – 20kHz
 S/N Ratio..... Unbalanced inputs > 95dB
 Balanced inputs > 95dB

Comments

The R200i preamplifier S/N ratio, at all frequencies between 20Hz and 20kHz, is very low.

Channel separation/Crosstalk Unbalanced inputs –70dB @ 1KHz
 Balanced inputs –90dB @ 1KHz

Comments

Few manufacturers specify the channel separation of a preamplifier because “separation” is not supposed to be a problem in preamplifiers. Unfortunately, that is not the case. Poor wire routing plays havoc with high-frequency separation while poor power supply design impairs low-frequency separation. Since we have taken care of this problem, we can specify channel separation at all frequencies with confidence.

CMRR..... Balanced > 95dB

Comments

For more information, please refer to Chapter 11 “Maximising System Potential” and consult the “Balanced Interconnects” section.

Audio inputs..... 1 x pair of balanced XLR style inputs
 4 x pairs of unbalanced RCA style inputs
 Audio outputs..... 1 x pair of unbalanced RCA style direct outputs
 1 x pair of unbalanced RCA style pre outputs

Power Amplifier Specifications Explained

Rated power 200W_{rms} into 8Ω
 360W_{rms} into 4Ω
 200W_{rms} into 2Ω

Comments

The R200i has been designed around the industry standard 8Ω load. The R200i delivers a staggering 200W_{rms} continuously into 8Ω loads and 360W_{rms} into 4Ω loads. The R200i will also handle complex and 2Ω loads with stability and ease.

Frequency response.....5Hz – 30KHz ±0.5dB

Comments

This is the “standard” specification with which everyone is familiar. Actually, “frequency response” is a misnomer: technically, it should be called “amplitude response versus frequency” for it describes how uniform the amplitude or strength of signals of various frequencies is maintained. It is generally thought that a difference of 1db is the least that can be perceived by ear. To better that by a wide margin, the R200i is specified two times higher, thus far exceeding the audible range of the human ear.

Total Harmonic Distortion (THD).....≤ 0.005% @ 1KHz into 8Ω
≤ 0.025% @ 20KHz into 8Ω
≤ 0.009% @ 1KHz into 4Ω
≤ 0.040% @ 20KHz into 4Ω

Comments

Measurements are made with fixed, purely resistive loads. However, since speakers are not purely resistive, an amplifier’s distortion specifications do not indicate what performance will be with the actual loads presented by speakers. Perreux distortion measurements hold for any conditions presented by any known speaker. Further, any measurable distortion in the Perreux is second-order harmonics – the least offensive to the ear.

Voltage gain.....26dB
 Dynamic headroom.....> 2.0dB

Comments

This indicates the R200i can provide more than enough extra power to cope with the sharpest musical transients. Without adequate headroom, an amplifier can become unstable under clipping conditions. Perreux amplifiers are intrinsically stable under all dynamic conditions.

Voltage swing $\pm 80V_{p-p}$

Comments

Loud transients call for a sudden burst of power from the amplifier to drive the speakers. This force is voltage. Peak to peak voltage is a more useful specification than Watts when it comes to delivering power to a speaker. The test for power in Watts uses a purely resistive load, even though no speaker is purely resistive.

Instantaneous output current 36A per channel
(Electronically current limited)

Comments

Current is the power reserve in the amplifier necessary to deliver the burst of voltage required by the ever-changing audio signal. With more than adequate continuous current per channel and high volts peak to peak, the Perreaux R200i can easily meet any challenge music can present to it – whether instantaneous or continuous. To be specific it can deliver high power into low-impedance loads and provide great dynamic headroom.

Channel separation > 120dB

Comments

This is another revealing specification. Our result comes from Perreaux power supply design (effecting the low end) and the care taken in design and manufacture (effecting the high end). The result is a clear, sharp and well-defined stereo image.

S/N ratio > 95dB
(referenced to rated output)

Comments

This is an unweighted figure taking into full account all potentially annoying hum components. Higher figures can be stated with weighting of course.

Damping factor > 2000

Comments

Another specification not always provided. One reason perhaps, this specification is important when indicating an amplifier's ability to control the cone behavior of speaker systems, which are difficult to drive. Perreaux power amplifiers have high damping factors. Thus exerting massive control over the speaker system.

Input sensitivity.....1.45V_{rms}

Comments

Indicates the amount of input power required to drive the unit to its full output power.

Input impedance.....33KΩ

Comments

This shows that the power amplifier has high input impedance and will not load down the output of most high quality preamplifiers.

Output impedance < 0.004Ω

DC offset..... < ±10mV

Smoothing capacitance 80,000uF
(40,000uF per channel)

MOSFETs 6 x Toshiba 2SJ 201-Y

..... 6 x Toshiba 2SK 1530-Y

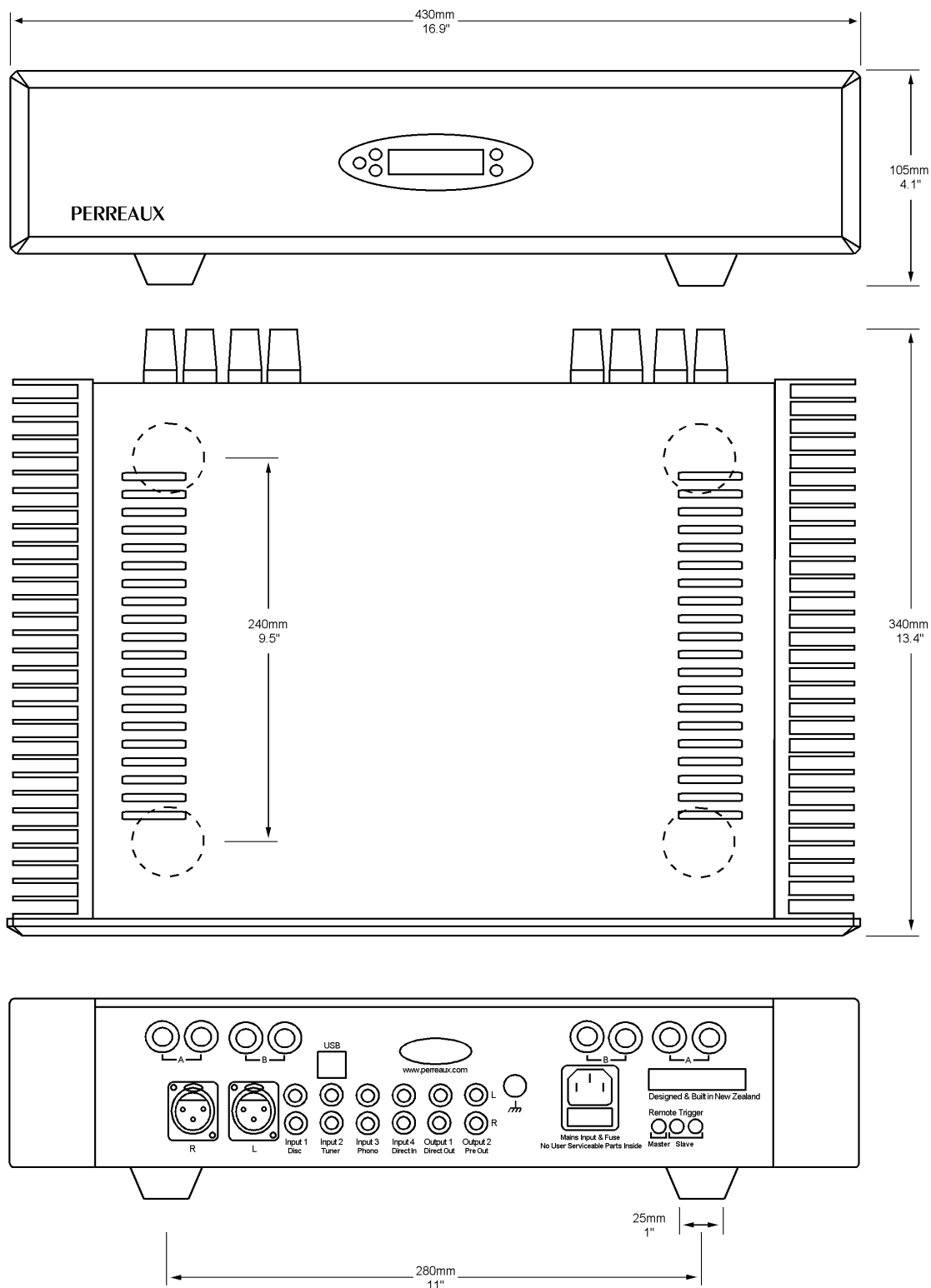
Driver stage..... Class A

Output stage Class A/AB

Audio outputs..... 2 x pairs of speaker binding posts per channel
(termed speaker A, B respectively. Speaker pair B can be toggled on or off)

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Physical Dimensions



For more information please contact your Perreaux dealer, or contact:

Perreaux Industries Ltd
PO Box 47 413
Ponsonby
Auckland
New Zealand

Ph: +64 9 815-5452

Fax: +64 9 815-5981

Email: info@perreaux.com

Internet: www.perreaux.com