

## PERREUX RADIANCE SERIES R200i INTEGRATED AMPLIFIER

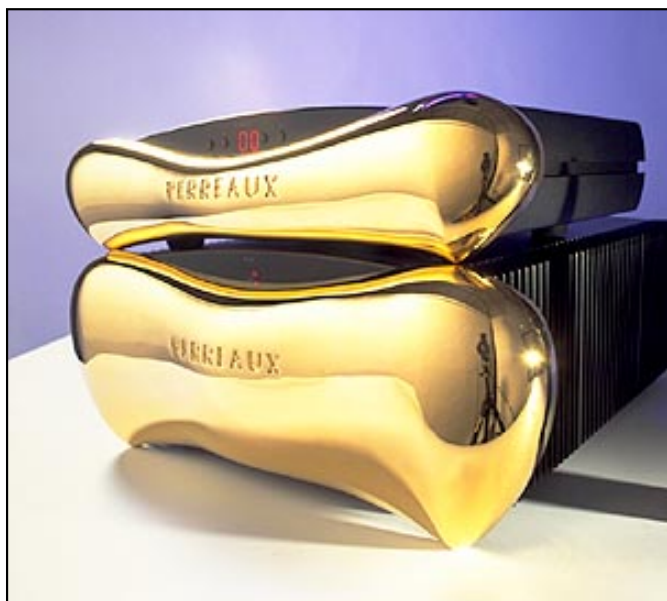
I really admire a company with a mission. *Not* the mission to make the most money in the shortest time, of course - but to take a particular house design and to develop, refine and perfect it with utter disregard for what the rest of the world's doing. With his series of active speakers, Bob Stuart at Meridian has been on this mission for as long as I can remember; and there are many other examples in the audio field, and in many other manufacturing areas for that matter. Porsche, with their 911 series, is an outstanding example.

New Zealand manufacturer Perreux has quietly followed this same path. And half an hour in front of the fire with the instruction manual for the Radiance 200i amplifier will be enough to convince you of the Perreux team's dedication to build a better mousetrap, then explain just how and why they built it, and how you may determine whether it indeed *is* a better mousetrap. The first chapter of the manual is entitled "The Decision Making Process". It advises you to:

*Read hi-fi and audio visual 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.*

The second chapter is an introduction to the Perreux Radiance Series, personally signed by the Managing Director, Martin van Rooyen. Martin highlights the key features of the amplifier in these words:

- *Compact*
- *Stylish*
- *High-powered design*
- *Dual mono, linear power supply construction*
- *Enhanced audio design, featuring noninvasive 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 manual also has chapters on "The Power MOSFET" and "Maximizing System Potential". You get a further sense -- for the missionary zeal propelling this company -- from an examination of their website. Here you learn that Perreux has been producing MOSFET-based amplifiers since 1979. And you'll find this extraordinary statement: *"In the entire history of Perreux and after the sale of many thousands of units, warranty claims have been virtually nil"*. The web site outlines the strategy used to keep those claims low, and a comparison of the Perreux sound with the sound of its competitors. Perreux claims that many others roll off the high and low frequencies while they instead maintain a flat response at all frequencies (specifications: preamp 5Hz-100KHz  $\pm$  0.25dB, amp 5Hz-30KHz  $\pm$  0.25dB). This leads to a sound that may, by comparison with amps which are more rolled off in the frequency extremes, appear itself depressed in the vocal range. All this makes for fascinating reading. But then I've heard good stories -- and good sound -- from other manufacturers, too. So for now, we'll take all this as advertising.

The Radiance series sits at the top of three ranges of amplification which Perreux produces. At the entry level is the E series [upper right], in the middle the Reference series [lower right]. The Radiance R200i is a clean-sheet design, which reputedly took three years of development. Every aspect of the design is said to have been rethought, with a special eye on future-proofing your investment.

Perreux has recently appointed Audio Advisor as its new North America distributor. You can buy the products on-line, with a 30-day money-back guarantee. That also means you won't be hearing this integrated amplifier in your neighborhood stereo store. \$4000 seems like a lot of money to be spending on an item you haven't even seen, let alone heard. There's plenty of competition at this price point. Musical Fidelity, Jeff Rowland, Krell and fellow New Zealanders Plinius come to mind. You can surely afford to skip on this one. Yeah. Or can you?

An amplifier would have to be pretty special to stand out in this market segment. The design team would have had to come up with an astounding design, something to make other designers sit up and think. The key word then? Minimalism. This amplifier is no bigger than it has to be, has no more controls than it has to have, with a signal path no longer than absolutely necessary. In fact, there's virtually *no* wiring in the signal path at all.



You may be familiar with the unconventional looks of some earlier Perreux Products, especially the curvaceous Reference 200i amplifier above. To these eyes, that design was over the top. The R200i [left], the first member of the new Radiance series, certainly has a futuristic look to it, but it's one you might expect from B&O or Sony. Top quality finishes are applied in a cosmetically fetching manner. The cover is a thick acrylic, the external heatsinks run the amp's full depth on each side. There are just five tiny controls on the unit itself: A button for on/off; volume up and down respectively; menu/enter; and mute/exit. These tiny controls are inset, along with a status display, into a wide oval window in the satin or black chrome aluminium faceplate. Unless you kept the amplifier at eye level, I don't think you'd be using these controls very much.

Instead, you'll operate this baby from its remote control, made from cast zinc alloy. A lot of thought went into this remote. It is very heavy and well laid out, but for my hands, some of the less frequently used buttons are too close together. The remote is designed to control two future Radiance series products - a CD player and a tuner. There are buttons to adjust volume, balance, speaker B switching, mute, power, and to display the temperature of the left and right heatsinks! You select the source by pressing a number from 1 to 5, or you can delve into the menu system instead. After some practice, I learned how to control the amplifier through that menu. It is remarkable just *what* you can control: Adjust the initial volume after power up; set a maximum volume level; assign a label to each input to show in the status window; control the brightness of the display; set input 4 to bypass the preamp section for a Home Theater thru-put. There's also an energy-saver setting to automatically revert to standby if no user activity is sensed for a customer-specified period of time, from 1 hour to 2 days. Now that's quite a range of adjustments, brought to you by the power of microprocessors. I would prefer a larger remote control, with less cryptic markings on the keys making it more intuitive for less frequent users. For example, what would you expect a button marked T to do (hint: T= temperature)? There's also a button marked 'mono', meant to control the Radiance tuner, with no corresponding effect on the amplifier proper.



The R200i is a true dual-mono design, with two large toroidal transformers for the amplification circuits, plus a separate smaller toroid for all the control circuitry. Four filter capacitors are coupled in parallel to provide 40,000uF per channel. High grade dual-sided fiber glass printed circuit boards contain circuit tracks of 2oz copper, which is used instead of point-to-point wiring. The preamplifier i/o ports are soldered directly to the printed circuit board. The high-quality volume control has 60 settings and uses an electronically controlled resistance ladder. With no moving parts, this should provide excellent long-term reliability. Indeed, the parts throughout are of excellent quality, and mechanically this is as well put together as anything I have seen. Each output stage uses 3 N/P pairs of Toshiba high-current MOSFETs, with a maximum current capability of 36 amps. The power output is 200/360wpc into 8/4 ohms. Roughly speaking, the first 10 watts are pure class A before power transitions to A/B.

200 watts per channel is a lot for an amplifier of its size [16.9" x 4.1" x 13.4"] and weight [30 lbs/13.5 kg], and there is no room for massive heat sinks. Instead, the amplifier incorporates thermal sensing circuitry. If operating temperature of a heat sink exceeds 85°C, that respective channel will be disconnected and allowed to cool. An 'over temp' message will display. During my six months with the amp, I never saw any of these messages. Simply put, the heat sink temperature never exceeded 52°C, hovering mostly around the 48°C mark. If your speakers were inefficient and you enjoyed high volume levels, the amp would run hotter. You then might be better off with a cooler running amp for your system. The R200i additionally monitors catastrophic over-current events, such as the accidental shorting of speaker output terminals. The amplifier will shut down, displaying an 'over current' message. There's also an electronic clipping protection circuit to instantaneously scale back volume and display 'clipping'. It is this ultra-sophisticated protection system that allows the designers to safely build so much power into such a petite chassis.

On the rear of the amplifier are 4 sets of RCA and one set of balanced inputs. In my testing, I could not hear any difference between either RCA or XLR paths, though longer cable runs might emphasize this. There are two sets of high-quality binding posts per channel and twin sets of single-ended outputs. I would have liked to see greater clearance between the various connectors - some beefier RCA plugs will end up too close for comfort. There's also a remote master trigger input

and 2 trigger outputs.

In case all this weren't enough for you, the amplifier can also be upgraded. You may add either a phono or USB/DAC module to stream audio directly from a computer hard disk. Neither option was available at the time of testing, so I hope to pen a follow up if I can get my hands on these upgrades.

As a function of  $< .004\Omega$  output impedance, Perreaux claims an extraordinarily high damping factor of over 2000. So you might expect the amp to exercise strong control over the speakers while coping nonchalantly with difficult loads. I drove my Wilson Benesch Act 1 speakers and AKG K1000 headphones respectively, both of which have caused grief for lesser amplifiers. Let's start listening.



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## AUDIO REVIEWS


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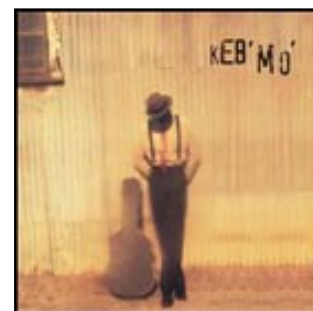
I connected the Perreaux to the Wilson Benesch Act 1 speakers, and fed the amplifier from a Gamut CD1. All the wiring was Cardas Golden Cross, with some additional listening to SoundString cables replacing the Cardas. My reference amplifier was a Plinius 8200 MkI, an integrated of slightly lower power but larger physical dimensions. I found the sound of the Radiance taut and dynamic from the word go, but I let it play for several hundred hours before passing judgment. The sound opened up considerably over that period.

I did run into one technical problem. The output of the Gamut CD1 is specified at an unusually high 4 volts both for its unbalanced and balanced outputs. From the factory, my Radiance came with a 3.8 volt max input sensitivity which produced momentary overload on certain recordings. I'm not sure if there's another CD player with a single-ended output above 3.8 volts, but there are several with a balanced output well higher. Perreaux informed me that the dealer or distributor can adjust the maximum input level on the balanced connection up to 6 volts. All current models have already been adjusted accordingly.



Let's play some music now. First up was Sonny Rollins' "Alfie's Theme" from *Alfie* [Impulse IMPD-224]. When played on the Plinius, there's tremendous pulse and swagger to this music. On the Perreaux, the perspective went farther back-hall; the sound, though powerful, became also more relaxed. You could more easily distinguish between the various instruments, the bass extending a touch deeper, with a minor loss of warmth in the midrange. The treble remained clean but the brassy edge less pronounced, with less sparkle up top. To me, the Plinius sounded more interesting - but the Perreaux was more *realistic*.

Next up was "Every Morning" from the eponymous Keb Mo [Okeh EK57863]. This came through full of life on both amps, with more texture in the vocals on the Perreaux, accompanied by greater articulation of the percussive sounds of hand slapping and feet stomping. Treble sounded airy and natural here, and I've heard Keb Mo live recently to know the sound I'm looking for.



A very revealing track on this amplifier was "My Baby Just cares For Me" from the CD *Girl Talk* by The Holly Cole Trio [Alert Music Z2-81016]. The sound was much less forward than I've heard before. David Pelch's string bass sounded more distant but also more tuneful than on the Plinius or YBA Intégré DT, Holly's voice was more intimate and softer. I missed the swagger of the Plinius here. The same could be said of Jennifer Warnes album *Famous Blue Raincoat* [ACDM 1227]. Everything remained nicely laid out in front of me, but the music had lost some of its visceral edge. Was this what Martin van Rooyen meant when he described the unusually



flat frequency response of the Perreaux?

Maybe you have a disc to torture-test equipment with? I own one that isn't spectacular in any which way, but can easily sound strident and thin. On top flight equipment however, it blossoms into the glorious sound of chamber music at its best. The disc? *Haydn String Quartets Opus 20 Nos 2, 3 & 4* played on original instruments by Quatuor Mosaiques [Astree Auvidis E8786]. The Plinius did an excellent job with this disk, as did the YBA Intégré DT. Playing this over the Perreaux brought me to the edge of my seat, however. The instruments were laid out in front of me in a three-dimensional arc, the sound of each instrument revealed as I had not heard before.



There was no touch of edginess, but a rich sound instead with great focus and presence. The second movement has the instruments playing in unison. I could hear each instrument in its individuated place, whereas the Plinius tends to blend them together. What I thought I was hearing thus far was a more neutral sound, extending further at both ends of the spectrum, with a good level of detail but no boost in the presence region. Distortion appeared very low. By comparison, the Plinius was both more colorful and forward.



How would these amps compare on less well-recorded discs? On the first Bach Partita, played by Rosalyn Tureck on *Great Pianists of the 20th Century* [Philips 456 976-2] as recorded in 1956, the surface noise was more prominent on the Plinius, with the more even-handed Perreaux greatly improving my enjoyment of the recording. I was lucky enough to hear Tureck play Bach at the University of Toronto. For all the tape hiss, her unique sound is well captured here. This recording showed off another difference between the amps. The reverberations seemed to last longer on the Perreaux, giving more of a singing tone to the piano line. I attribute this to the very high damping factor - even at very low levels, the Perreaux was exercising stronger control over the speakers, forcing them to reveal the softly decaying sound waves that a lesser amp might not be capable of eliciting from the speakers.

Switching cables from Cardas to SoundStrings gave me a bigger sound, revealing more of the deep bass extension the Perreaux can produce. The AKG headphones on speaker outputs 'B' sounded more visceral and *much* stronger in the bass than before. I plan a full review of these exciting cables soon.

As you adjust the volume, you receive level confirmation in large numbers on the double-height display. I found it very convenient to be able to set my preferred volume level numerically. The volume control works at two speeds. As you crank it up, it moves at one speed, when you turn it down, it accelerates to twice the speed. This takes some getting used to but makes sense. When you switch inputs, the volume fades to zero, then ramps back up on the new input, avoiding any sudden shocks to the system. I like that, except when the 4 to 5 second delay during the comparing of two sets of cable between source and amp makes *head-on* A/Bs impossible.

I have frequently been disappointed by the shallow and percussive piano sound on so many Horowitz recordings. While far from my favorite pianist, I was impressed with his range of tone and color when I heard him in 1980 at the Avery Fisher Hall. I decided to check out his 1987 recording *Horowitz Plays Mozart* [DG 423287-2]. *This was my biggest surprise!* Here, for the first time, was the sound I remembered from my live experience: Crisp articulation, fully sounded-out notes, no touch of steel, no hollowness. Now I rushed to try my other Horowitz recordings. *Horowitz at Home* [DG 427772-2] - the magic was still there, but to a much lesser extent since the acoustics sound quite closed in. This should be no surprise; it was recorded in Horowitz's New York apartment. Then my personal favorite of all Horowitz recordings - the *Scarlatti Sonatas*, recorded in 1964 [Sony SK53460]. The playing is magnificent, the recording no match, the Perreaux revealing the full ugliness of the 'High Definition Remastering'. Less revealing amps might gloss over the dynamically compressed sound. Perhaps Sony can be persuaded to remaster the sound once more, with the benefit of an extra ten years of hindsight experience?



With the Perreaux, I found myself listening for long stretches to old favorites - *not* to find new details I might have missed before, but simply because the experience was enjoyable and not at all fatiguing. I missed the added color and excitement of the Plinius, but the improved spatial resolution, coherence and the more natural string and piano tones more than compensated. I don't mean to put the Plinius amp down - I'm a big fan, and the similarities between the two amps are far greater than their differences. I could happily live with either and see them both in an altogether different league to the highly regarded and similarly specified Arcam FMJ A32 or the more modest Creek 5350SE. Music was more alive, three-dimensional and involving than with the Arcam, more detailed and refined than the Creek. That's as it should be, given the price difference. These findings may also be a reflection on the demanding load my Wilson Benesch speakers present.

So is there truth in advertising after all? First, let me say that Martin van Rooyen's list of key features is spot-on. This amplifier is a testament to clever minimalist execution which, in my mind, meets its design criteria with real flair. I've mentioned a few reservations about certain ergonomics. You can get a more delicate or detailed sound, even more powerful bass, more extended treble or a greater bloom in some other designs - but not at this price. Most of these would be much more expensive separates. I'm a great believer in integrated amplifiers. I like saving money, space, a power cord and interconnects of course. However, the *real* gain is in the significantly shortened signal path and the optimized impedance match between pre and power amps.

At this price, I have yet to hear a better all-round performance. I think this is one of the most important and influential new products to emerge in the last few years. It combines visual appeal with a very refined sound and the ability to drive extremely difficult loads. And despite its petite size, it's built like a tank. What's not to like? Bravo!

After completing this review, I spoke to [Clinton Jensen](#), one of the Radiance design team!

What were the most important design decisions for the Radiance R200i?

Unlike the Reference Series 200i, the Radiance is a true dual-mono design, with separate transformers for each channel. The amplifier is fully DC-coupled, requiring special protection against DC offset while also providing frequency extension to DC. We bias the power MOSFETs quite high into Class A for optimum performance. We also paid very close attention to the regulation of the power supply throughout.

The heat sink temperatures are controlled never to exceed 85°C. Isn't that a bit hot?

It is, which is why we recommend you don't touch 'em. This amplifier doesn't normally run that hot of course - it runs much cooler than a conventional Class A amp. We picked 85°C because that is the temperature rating of the capacitors we use. Any hotter, and it begins to have an affect on their longevity.

The amplifier can be upgraded. How would you upgrade the software?

It is unlikely that we would offer a software upgrade unless the hardware was simultaneously being upgraded as well. If we did, there is an 8-pin port under the top cover which connects to a PC through a proprietary connector. The software has no impact on the audible performance of the amplifier - it merely dictates protocol for the control circuitry.

Tell me about the phono upgrade.

We have recently introduced our Silhouette SXV1 outboard phono preamplifier [right]. For the Radiance plug-in module, we'll be using a refined version of this basic design, but significantly higher in performance to match the requirements of the Radiance Series owners.

I look forward to auditioning that soon.



I also had a few questions for [Martin van Rooyen](#), Managing Director of Perreux:

How does the Radiance Series relate to the Reference Series?

The Radiance Series is our premier offering and as you have witnessed with the first product, the R200i, we have taken a clean-slate approach to the product design whilst retaining and enhancing all that is good about the existing designs.

Besides the R200i, what other products are under development?



**A** Your review correctly highlights our thinking that there are other products in the Radiance series planned in the future. We have been busy launching the Silhouette series of low-cost high quality modules, but in the next year we plan to release further Radiance products.

**Q** Tell me a bit about your relationship with Perreaux.

**A** I love this company, its people and the industry with a passion. I have been happily married for 18 years and have 3 beautiful children to boot, but it's not other women that my wife Vicki is weary of, it's Perreaux!

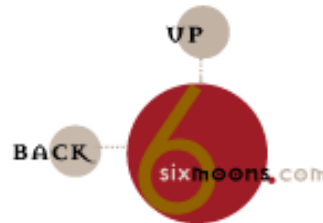
When you work with the Perreaux engineering team and witness the intense struggle to design and build something as special as the Radiance R200i, only then can you fully appreciate the honor of being a member of Perreaux. I am not the lead designer, I don't have all the ideas or answers. Rather, I am a member of a small but totally committed team that shares a vision and a burning passion to design and build some of the world's finest high end audio products.

**Q** New Zealand has spawned two high-end electronics companies: Perreaux and Plinius. Is there something in the air?

**A** I consider myself one of the lucky few to live in New Zealand. Its unique environment tends to develop strongly independent "can do" types who are perfect for a company like ours.



*Phil Gold*



Manufacturer's [website](#)

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