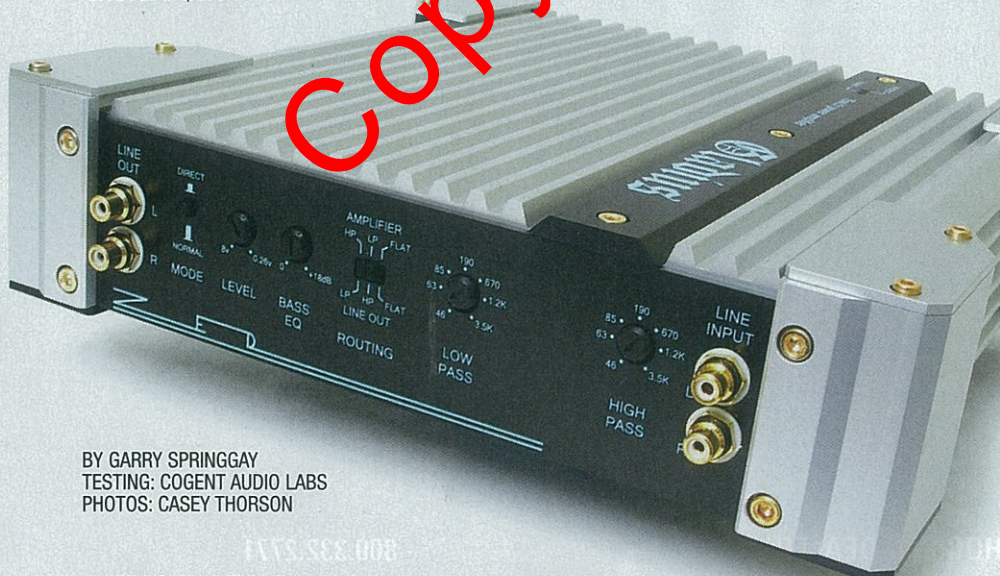




ZED AUDIO GLADIUS

THE "THINKING MAN'S" AMP

MSRP: \$250



BY GARRY SPRINGGAY
TESTING: COGENT AUDIO LABS
PHOTOS: CASEY THORSON

IF YOU'VE BEEN IN THIS INDUSTRY FOR A LONG TIME, YOU KNOW ZED AUDIO CAME UP WITH SOME PRETTY STOUT DESIGNS FOR MORE THAN A FEW POPULAR BRAND NAMES. However, I never tested anything stamped with their own name. Large, heavy and serious looking, the Zed Audio Gladius is a 2-channel amplifier. Rated at 75 watts continuous power per channel, it sells for the very reasonable price of \$250. The name Gladius may remind you of another brand using the names Roman and Norse over 20 years ago — the connection is not a coincidence.

So who are these guys and what are they all about? Zed Audio began in 1983 when pro audio engineer/hobbyist Stephen Mantz decided to move from his home in South Africa to the U.S. to start an amplifier manufacturing company. Since then, Zed Audio has built some of the finest 12-volt equipment available, including the original legendary Hifonics amps (hence the connection) as well as some gear for companies that no longer exist.

Zed amplifiers for mobile use are the culmination of over 25 years of experience in the manufacture and design of audio amplifiers. The philosophies that Zed Audio uses to design and build their products are what I call "outside the box" thinking. Happily it's actually original thinking, not merely a cheaper version of someone else's work. And the results of the original thinking? Quite amazing actually. Read on and you'll find out what I learned.

The Gladius amp that was dropped off at the lab immediately caught my attention, particularly when I casually thumbed through the extremely informative and entertaining owner's manual. Here was a company that wasn't afraid to tell things as they saw them and burst a few urban myth bubbles in the process. I think the manual should almost be required reading for anyone new to the industry or anyone pursuing a career in it. Do yourself a favor, and check out the Zed Audio website. You'll find some very interesting, informative and thought provoking reading.

But I'm getting off track here. Back to the amp.

The Gladius is a rather robust, industrial-looking device, measuring about 12.375" x 12" x 3". Weighing in at an attention-grabbing 16 pounds, you get the impression it's no garden variety 75-watts-per-channel amp.

The heatsink is a relatively average-looking finned extrusion, finished in a matte brushed aluminum color, with gold-plated hex head bolts as contrast. On each corner of the amp, bolt-on "pillars" internally conceal the amp's mounting feet. To be honest, while the fit and finish is very

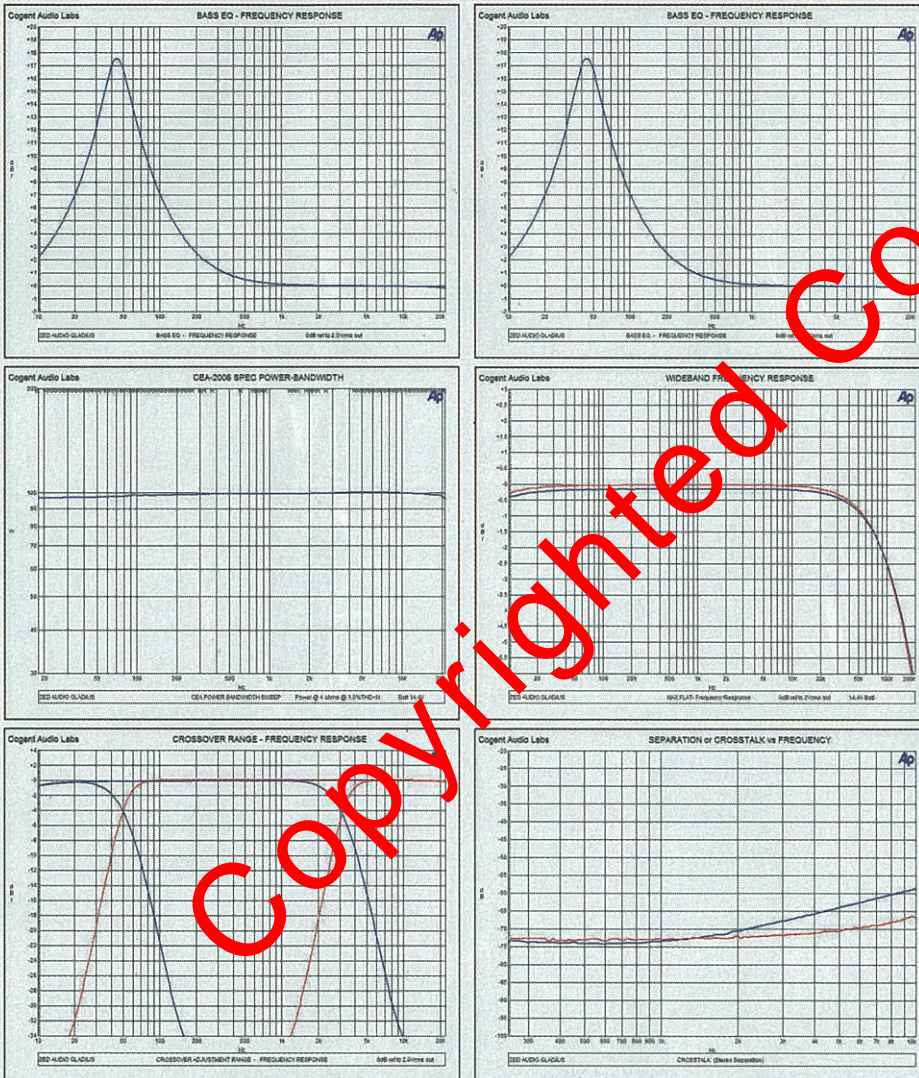


fier, rather than “whatever we had a bucket of.” For example, when a polystyrene cap is the best part to use, like in a crossover for example, that’s what you’ll find. But when a ceramic capacitor is the most appropriate type of cap to use, it’s there instead. This tells me that the engineer gave a damn about the way the amp would sound and that attention to detail is part of what makes the amp unique. Sad to say, but there aren’t many brands out there that take the time to care, since the end result is admittedly only a small difference. But for those of you who do care about such things, here is one amp that will make you happy.

The Gladius uses primarily surface mount parts, and high quality low-tolerance parts for everything else. There’s plenty of onboard capacitance: 8,800 μ F for the power supply and another 8,800 μ F for the rails. With a total of six high current Mosfets in the power supply, and eight high-speed bi-polar devices as the outputs, the Gladius will readily drive a 2- Ω load per channel all day long and any frequency. It’s equipped with the usual crossover controls including a complementary crossover output for the pass-through RCAs. Also included is a variable bass EQ, which can provide up to +18dB of boost at about 44Hz. I like to really get inside these things and snoop around a little. When I did I liked what I found — more original thinking and a bit of a professional audio adaptation. Of note, and because it’s quite different for the 12-volt world, the input circuitry is totally isolated from ground and fully balanced using Zed Audio’s “Differential Drive” circuitry. The results are a quiet preamp section and a good immunity to ground-loop-induced noise problems. The control pots are good quality and have a smooth, weighted feel to them, much like what you’d expect from a nice piece of home gear. Little details, like the power and ground connectors being not only soldered, but also connected with machine screws to the pcb, were nice touches that aren’t usually found at such a low price.

MANUAL

I mentioned it already, but the manual included in the Gladius is a piece of work in itself. Sure it includes all the normal stuff you’d expect to find, like how to mount, connect and set the controls, but it also includes a section devoted to not only educating the new owner on what specs mean, but also to dispel a few myths. And while I’d bet there are some marketing types who would probably like to argue some of the points made, from a sonic perspective they’d ultimately lose the argument. I have to say that the informa-



good, I don’t care much for the cosmetics of the Gladius, but in this instance I feel good paraphrasing Plato: Beauty is in the eye of the beholder.

DESIGN

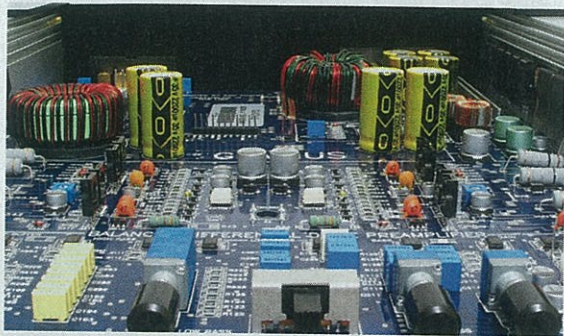
The Gladius amp uses a highly regulated and thoughtfully designed power sup-

ply. The innovative design results in low noise, reasonable efficiency and provides an unflinching voltage supply and current to the output section. Inside the amplifier I found more evidence that it’s a “thinking man’s” amp. There’s a high-quality, symmetrically laid-out double-sided pcb, using parts appropriate to that part of the ampli-

tion presented is written decidedly from a real audio engineer's perspective, but it's factual. It does make you wonder, for example, whether or not the \$300 you just spent on those quad-shielded, oxygen-free, crystalline-structure-aligned-with-the-pyramids, silver-soldered cables were really the best thing to spend your money on. And I have to say, I'm 99 percent in agreement with the points made. Like the old line from one of my favorite movies says, "Learn it, know it, live it!" Getting to read the manual, by itself, is a good reason to buy a Zed Audio amp.

LISTENING

Regular readers know I do my listening



CONCLUSION

The company espouses unpopular but true notions in its product manual and builds a very modest amp with sound quality to rival anything out there. The Zed Audio Gladius left me quite impressed and has become an additional point of reference for sound quality from a 2-channel mobile amplifier.

PERFORMANCE DATA

OUTPUT POWER @ 1% THD, 1KHZ, 14.4 VOLTS

Stereo @ 4 ohms	100 watts x 2
Stereo @ 2 ohms	183 watts x 2
Bridged @ 4 ohms	366 watts x 1

OUTPUT POWER @ 1% THD, 1KHZ, 12.5 VOLTS

Stereo @ 4 ohms	100 watts x 2
Stereo @ 2 ohms	183 watts x 2
Bridged @ 4 ohms	366 watts x 1

Distortion at rated power, 1 kHz, 14.4 volts 0.005% @ 4 ohms

Input sensitivity 300mV to 9.2V

Frequency response (+ 1dB) <10Hz - 112kHz

S/N ratio (A weighted, full 4-ohm power, min gain) -107.2dB

Slew rate More Than Adequate

Output Impedance @ 100Hz, 4 ohms 0.03 ohms

Idle current 0.8A

Maximum current consumption, unclipped 64 amps @ 183 watts

x 2 @ 2 ohms

Efficiency at 1/3 power, lowest impedance 31.5%

Efficiency at full power, 1% THD, lowest impedance 57%

Crossover slope -24dB/octave

Crossover range, highpass 53Hz - 3500Hz

Crossover range, lowpass 45Hz - 2840Hz

Dimensions 12.375" L x 12" W x 3.0" H

sessions in my quiet lab on a high-end reference system that I'm familiar with. But before I get into the details of my listening session with the Gladius, I thought it would be good to share some facts with you. Some of you will understand this instantly, and others may not want to believe this, but I promise you it's the truth. I measure and listen to about 130 different amplifiers a year, including car, home and pro products. I've been doing this for well over 20 years, so you can trust me on this one.

I don't believe that out of the box, without corrections, all amps sound the same. They don't. Yes, many good ones can sound indistinguishably similar, even if they are very different kinds of amplifiers. In fact, many years ago, I did demos to classrooms full of people who proved to themselves they couldn't tell the difference between an IC amp in a head unit from a well-known "sound Q" amp. These were simply very different amps that sounded very similar. The only "setup" in that scenario was very careful gain matching, and never driving either one into clipping. But amps simply don't all sound the same out of the box. Some are better than others and some are actually pretty awful. Yes, with careful EQ and gain corrections applied they can be tweaked to sound about the same, but they don't get that careful correction in real life.

Just how does a good amp sound? To start, it doesn't color the music. It doesn't add or subtract anything from the original signal, and it allows the recording engineer's vision of the intended sound to be fully reproduced. The frequency response is very flat and doesn't roll off prematurely on either end of the spectrum and the amp has the ability to drive the load properly without adding audible distortion or noise. There will be very little difference in the amount of gain on each channel. All these things can create audible differences.

Over the years, I've measured brand new "famous name" amps with frequency response variations of greater than 3dB! Sure, sometimes it was actually intentional, as the brand was creating their "sonic signature." I've also seen amps with a single ganged gain pot controlling a stereo pair of channels, with more than 4dB of difference between channels at certain places in the pot's rotation. That's never intentional.

By now it must be obvious why they simply can't all sound the same out of the box.

This is one of those amps that made me remember just why I made the decision to do in-lab listening in the first place. If I had been evaluating amps in a car all along, I might have put some of my

impressions of the sonics of this amp down to an exceptionally unusual day in the car. But in the lab, with controlled conditions, when an amp sounds really good or bad, it's quickly evident. And this amp sounds uncommonly good.

The Gladius reproduced high frequencies with smoothness and exceptional detail. It wasn't brittle or hard-sounding. The best way I can think to describe it, is "natural." The amp sounded flat and very linear with respect to frequency response. The bass was deep, low and tight. The bass EQ provided a bit too much boost at adjacent frequencies and to make it more useful I'd prefer a high filter Q factor but that's a personal preference. Female vocal, piano, saxophone and acoustic guitar sounded natural and clean. The amp produced a good soundstage which is a testament to good control of both the inter-channel gain, and the phase response of the amp. There was no audible turn-on or turn-off noise and during the duration of the test, the amp barely got warm. I listened to this amp for well over four hours, playing everything from Bach to ZZ Top and I came away very impressed. This thing just sounds natural and transparent, precisely the way a good amp should. I'll say this, if I were to recommend a 12-volt amplifier based solely on sound quality, the Gladius would make my Top 5 list. Don't let the economical price fool you, right out of the box this amp sounds very good.

PERFORMANCE

On the bench, the Gladius met or exceeded every specification outlined in the owner's manual. It developed more than rated power, both 4 and 2 ohms per channel, and the power remained constant to the last watt — even with a battery voltage of 12 volts. As I suspected, after listening to it the inter-channel gain difference was very close at less than 0.1dB, and there was only 0.2 degrees of phase difference between channels at 20kHz. Signal to noise was exceptionally good, as was the stereo separation number. The frequency response was almost ruler flat from below 10Hz to above 100kHz.

The amp handled reactive loads with ease, and even the very difficult load presented by a pair of large electrostatic loudspeakers (I tried 'em just for fun) was no problem for the Gladius. During testing on the bench, with repeated full power runs and all the assorted measurements, the Gladius didn't heat up significantly, which I attribute to having more than the average amount of heatsink for the power levels reached. The amp showed no sign of stress and should be very reliable.