



## Krell Evolution 402e Stereo Amplifier Reviewed

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When you think of Krell electronics you're probably a lot like me, you envision large, silver or black clad hunks of steel that house enough power to jumpstart a small planet. Krell has always been about taking it to eleven and to hell with the status quo – more is always better. One only has to glance upon the Krell family tree of products to see what I'm on about, for everything Krell has made since their inception has been bigger, louder, more expensive and just downright nuts. That's why I love 'em and have been a fan since I first laid eyes on the KAV-300i integrated amp way back in high school.

But times they are a changing. The wanton excesses of just a few years ago have caught up with us and we've begun to shift our collective consciousness from buy, buy, buy to save, save, save. Where we once would've looked at a \$2,500 HDTV and said, "Can I get 12 months same as cash with that," we now wait 12 months until we actually *have* the cash. It's a different world.

The high-end audio/video space hasn't been spared, as many manufacturers have shuttered their doors or have been forced to scale back in an attempt to weather the storm. Dealers, the life's blood of the specialty high-end marketplace, are going out of business at such a rate that it's hard to keep up with all of them. Krell has had its share of bumps in the road too, with the unceremonious departure of its founder Dan D'Agostino in the fall of 2009

that left many of us in the home theater and audiophile community wondering if Krell was going to be the next giant to fall prey to an ailing economy.

It turns out that Krell is just fine and if the Evolution 402e reviewed here is any indication I'd say they're just getting warmed up.

The Evolution 402 retails for \$18,500, which is a lot of cheese given the economy that I've just described; however compared to the competition the 402e is quite possibly a high-end bargain. So what does your eighteen-five get you? For starters the 402e is stunning to behold, though there is little that has changed visually from the previous 402. Hey, if it isn't broke don't fix it. The 402e's casework is phenomenal and one hundred percent Krell, measuring in at a staggering 17 inches wide by nearly 10 inches tall and 22 inches deep and tipping the scales at a back breaking 135 pounds. The front fascia features a vertical "stripe" of aluminum that bares Krell's name as well as the amp's model number, all resting above the 402e's large, circular standby/on button. The button glows blue when the amp is on and running and can glow green or red depending on how you have the 402e configured to run in standby mode.

One of the new features of the 402e over its predecessor is the addition of an eco friendly mode, which drops the 402e's standby power consumption from 370 watts to two. You read that correctly, the old 402e, in standby, drew 370 watts of total power whereas the new 402e can be configured to suck only two watts of power in standby. I say configured because you can still set up the 402e to be "percolating" all the time by holding in the front power button and powering off the main breaker then back on before releasing the button. This will cause the 402e's on/standby button to now glow red and raise the standby power draw back to 260 watts as well as require less time for the 402e to "warm up" for a critical listening session. Personally, I tried this procedure once but never left it engaged, for I'd rather wait 15 to 30 minutes for the amp to be ready to rock and roll and then have Southern California Edison watch my meter like a slot machine dial when I'm not home.

Around back the 402e is pretty straightforward with zero changes over the original 402. Looking at the back panel starting on the left side and moving down you'll find the 402e's inputs, which consist of Krell's CAST system as well as a pair of balanced and unbalanced audio inputs. Below the 402e's

inputs rest two pairs of large, wing nut style binding posts that are nicely spaced, easy to tighten and can accept bare and spade terminated speaker cable. Along the right side of the back panel are the 402e's 12-volt triggers and backlight controls. In the lower right hand corner you'll find a simple, plastic switch, which is the 402e's main power breaker and a detachable power cord receptacle.

Inside is where most of the changes to the 402 have been made in order to transform it into the 402e. Power output remains the same at 400 watts per channel into eight Ohms, 800 watts per channel into four Ohms and 1,600 watts per channel into two Ohms, which is more than enough power to drive even the thirstiest of loudspeakers regardless of their size or the venue. The 402e now has an upgraded power supply, which includes a new toroidal transformer for the digital control circuitry as well as a substantial increase in capacitive power supply reserves which now rests at 170,000uF up from 132,000 as with the original 402. Krell has further refined their Active Cascode Topology with the 402e by being able to balance, more precisely, the current sharing among the seven sets of Active Cascode Quartets that are found in the 402e's output stage. For those of you unfamiliar with Krell's Active Cascode Topology, it basically takes the positive and negative rail voltages and spreads them out across rows of individual transistors designed to handle only certain portions of the incoming voltage, thus allowing the transistors to perform more efficiently as well as cut down on the amplifier's generation of negative feedback, which degrades sound quality. Yes, but how does it sound?

### **The Hookup**

How I came to get my hands on the first ever production model of the 402e began at CES this past January: I went to a Krell press event where they were demonstrating an early production model of the 402e along with their new Blu-ray player. There were a few audiophile and home theater journalists in attendance and needless to say we were all very impressed. I was so impressed that I immediately went to Krell's Director of Global Sales and Marketing, Bill McKiegan, and requested a review sample on the spot. A few weeks later the 402e arrived on my doorstep, much to the chagrin of the delivery guy.

Unpacking the 402e is a job for two people or your custom installer; however it can be done solo, though I don't recommend it. I installed the 402e in my reference system, naturally, positioning it on the floor between my Revel Studio2 loudspeakers and connecting the two via a pair of eightfoot Transparent Reference speaker cables. I went ahead and connected my Mark Levinson 326S preamp to the 402e via a pair of balanced Transparent Reference interconnects. For sources I utilized my Mark Levinson 512 CD/SACD player and trusty AppleTV, both connected to the 326S using Transparent Reference cables.

I should point out that I had an ulterior motive for wanting the 402e in my home besides just being able to review it. During its brief stint in my reference system I was hard at work finishing postproduction on my latest film "In The Darkness." After hearing the 402e at CES I wanted to have it for our final mixing sessions on the film, since we were mastering the film in high-resolution stereo. So, we bypassed all of my Mark Levinson equipment and ran the 402e straight from my sound designer's Pro Tools rig for the better part of a week while we finalized the film's sound design and score. I let the 402e break in for the better part of a week before beginning any critical evaluation and/or using it to master any of the film's soundtracks.

### **Performance**

At Krell's 2010 CES press event which I spoke about earlier, they played one of my all time favorite Diana Krall tracks, "A Case of You" from her *Live in Paris* album. I know this song inside and out and have never heard it reproduced as well as it was during the Krell demo at CES. As impressed as I was, I had to take it with a grain of salt, for hotel or trade show demos are often marred by bad room acoustics and poor setup, though I'd argue if it sounds good a trade show it's bound to sound better at home.

That being said, I tested my theory and loaded up Diana Krall's *Live in Paris* and skipped ahead to the song "A Case of You." While my home system is based around a pair of Revel Studio2 loudspeakers, versus the Krell Modulari Duos used at CES, the sound was remarkably similar and really showcased the 402e's ability to maintain its supreme performance despite changes in ones system. The opening notes were round, lush and hung beautifully in space between my speakers. However it was the reverberation and concussion of the piano's hammers against the strings that gave me

goose bumps. The air being moved around inside Krall's concert grand bordered on tactile and added an even greater sense of air, space and dimension to the performance even after the notes themselves faded into oblivion to make way for the next. Krall's vocals had an in-room presence unlike anything I'd ever heard in my system. Despite "A Case of You" being from a live recording my seat was right next to Krall with the Paris audience extending for miles behind my front wall. The 402e's ability to recreate - scratch that - transform ones listening environment into the venue or recording space is uncanny and begs belief.

Since "A Case of You" featured Krall by herself with her piano I went ahead and left Paris in search of something a little heavier and uncovered one of my favorite 90's bands, Barenaked Ladies, and their album *Born on a Pirate Ship* (Reprise). Starting with the track "The Old Apartment" the 402e stunned me with its sheer precision and effortless detail. The opening drumbeat had such presence and weight that it actually caught me off guard for a moment, it was as if Krell had snuck a drum kit into my listening room in the few seconds I looked away to get my paper and pen ready to take notes. I was stunned, for nothing, not even the mighty Mark Levinson No 53s, were able to get me to suspend my belief in thinking there was a real drum kit in my house. The sound coming out of my Revel Studio2s courtesy of the 402e was so palpable, natural and effortless it felt as if I wasn't listening to any electronic equipment at all, replaced instead with live music, which is quite a feat considering *Born on a Pirate Ship* is a studio recorded album, unlike Diana Krall's *Live in Paris* I demoed earlier. I won't say that the 402e managed to fully fool me into thinking I was listening to a live event, but no amp has come closer to achieving this feat, in my system, than this. Everything that passed through the 402e was brought into supreme but appropriate focus. The background was dead silent, which only made the 402e's dynamic prowess all the more visceral and real. High frequencies were reproduced with such grace, texture and air that the trailing edges of notes, especially the cymbal crashes, seemed to go on and on and on, hanging delicately in space. Past Krell amplifiers have been criticized for being a bit too sharp and clinical in the treble region, an old observation that has since plagued Krell to some degree. Well, we can put that to rest, for the 402e is one of the purest, dare I say, most analog sounding amplifiers I've heard when it comes to high frequency reproduction.

I switched tracks to "In the Drink" and once again had to simply pick my jaw up off the floor. The opening guitar riff was hauntingly real in every way. Normally, when judging dynamics I turn to more bombastic selections. However the 402e with the track "In the Drink" showcased what true dynamics are all about. Every pluck and strum of the guitar strings were like finger prints with no two ever being alike and the 402e brought that to light, with detail, texture, weight and grunt that was explosive and immediate while still being soft and easy going. Once the song got going I could hear the floor boards below the artists' feet as they stamped and kicked in time with the beat but the best thing about the ambient tones was the fact that they actually appeared to be coming from *my* floor. The 402e has a soundstage that is equal parts width and depth but also height: this is an amp that doesn't float the music a foot or two off the floor then send it out and back for days, no, the 402e actually recreates the stage and the sound that's being produced on it.

After listening to Barenaked Ladies I went ahead and cued up *Seventeen Days* by 3 Doors Down on Dual Disc and the track "Father's Son" (Universal). As with my previous demo material the sound emanating from the speakers was unlike anything I'd ever heard before. To say the 402e has a way with music is an understatement. It doesn't just simply reproduce the notes nor does it try to put its own spin on the music, it just lets the music breathe. Lead singer Brad Arnold's vocals were front and center and stood out from the rest of the music behind him, though I could easily discern when he stepped away from the microphone as well as when he drifted from side to side thanks to the 402e's stunning accuracy and resolution. Normally we reviewers tend to try and classify a product's sound as being warm or lean, bright or dull...well the 402e isn't really any of these things unless of course the recorded material itself calls for it. Arnold's vocals aren't what I'd call warm but raspy, with a side of grit and instead of trying to smooth over the rough edges, the 402e lets Arnold be Arnold. The same holds true for the rest of the band and their instruments: guitars can sound supple and sweet just as easily as they can sound harsh and unforgiving, which is what the 402e will show you. However the 402e seems to have some sort of "do no harm" line drawn in the sand somewhere, for despite bringing every detail and nuance to life, even when you'd rather it didn't, it never sounds

bad or wrong. It's as if its large standby/on button staring you in the face while you listen has a third feature: the "don't suck" button.

I decided enough was enough and got rough with the 402e, feeding it Static-X's "*Push It*" (Warner Brothers) and all the volume I felt my speakers and frankly my ears could handle. Well, it was louder than snot, louder than any listening session I'd ever conducted in my reference room. It was so loud in fact that I managed to knock over some picture frames on a nearby shelf.

This was not about musicality any more than it was about finding the 402e's breaking point, which I was unable to find. The 402e played back "*Push It*" in excess of 100dB in my room for the entire track without so much as a hiccup. The sound was the same as it always was only there was more of it. It didn't compress one bit, instead it fought to break loose from the confines of the room itself. The bass was epic, exercising such control over the Studio2's bass drivers that I thought if the 402e had opposable thumbs it would've fitted a ball-gag to my Revel Studio2s for they had become its bitch. "*Push It*" cemented the 402e's abilities as a truly phenomenal amp, one that is unwavering in its pursuit of musical truth, capable of sonic feats I had never experienced on such a grand scale before.

Over the course of two weeks I continued to throw anything and everything at the 402e from Billy Joel's "*Piano Man*" to Busta Rhymes' "*Break Ya Neck*," and with each and every track I walked away from my listening session simply amazed at how Krell was able to turn an already solid amplifier in the 402 into an amp that bordered on otherworldly with the 402e. No matter what the genre or volume level, the 402e never ceased to amaze.

Like I said earlier, my reasons for wanting the 402e were not entirely altruistic. I requested it because I wanted to see if it could pull double duty as both a reference amplifier as well as a mastering one. My sound designer, Craig Polding, had been hard at work on the final mix for my latest film "*In The Darkness*" when the 402e arrived at my house. He had been using well known powered speakers throughout the process up until it was time to lay down the final mix in my home studio. Craig and I have known each other for a while now, but I can tell there is always a tinge of reservation whenever I try and get him to use consumer grade electronics in conjunction with a professional mastering setup. Well, it took all of about eight seconds

of the opening scene of the film to convince him that the 402e was no run of the mill consumer amplifier; in fact he didn't let the film play past the first scene before stopping it and apologizing for not having certain sound cues leveled properly. No apology was needed for I knew that the 402e was shining light on aspects of the film's soundtrack that he had only just barely heard before or never knew were present to begin with, which included a lot of ambient tones that he would later EQ out in Pro Tools - because the 402e shed light upon them. For me, mixing with the 402e in our studio was the ultimate test, for it had bridged the gap between the professional and consumer worlds so convincingly that we were able to utilize it from start to finish without having to rely on a professional, powered speaker setup as a backup or check system.

Now, Craig did mention that the idea of using such a high quality amplifier on a film that was having its global premiere via the Internet on Hulu.com was probably overkill, for the best speakers this film was probably ever going to see were that of a laptop computer. He had a point, however, when we were done mastering the final output we played that same file back via a variety of other systems in my home from a MacBook Pro to an Aperion Audio Soundbar and found the sound quality and the mix to be superior to that of the original, created with professional studio speakers. Now, I'm not suggesting that because we used a 402e that your computer speakers are going to all of a sudden sound like Krell Modulari Duos. But because the 402e is so good at extracting every last ounce of information we were able to better tune and level the subtle cues and nuances in the film's soundtrack so that they were then audible through lesser systems like a laptop or soundbar.

### **The Downside**

If it seems like this review has been nothing but a love fest for all things Krell and the 402e. I apologize, I just wasn't expecting to be as impressed as I was. That being said the 402e does have a few shortcomings.

For starters, the 402e runs notably hot - too hot to touch after long or vigorous listening sessions. Proper ventilation isn't so much a suggestion as it is an absolute requirement. While the 402e will fit in a Middle Atlantic rack I'd hesitate to install it in one unless I had the proper cooling system in place. This is not an amplifier you simply want to have a few inches clearance top and bottom and you're good - this is an amp that should be



placed in open air installations or forced air cooled racks for best performance. Trust me.

While the 402e's new two-watt standby mode is a wonderful addition, don't think that its true power requirements are more Earth-friendly because they're not. Simply hitting the standby/on button and taking the 402e out of standby mode and into idle increases its power draw to 570 watts. At full tilt the 402e can draw as many as 3,800 watts of power from your wall. Make no mistake; the 402e is all Krell all the time once you take it out of standby mode. They can put all the green lights on it they want, it's still a monster. I wouldn't classify the 402e as an unforgiving amplifier but it will definitely point out weak links in the signal chain as well as let you know if your loudspeakers are up to snuff. While I found the 402e to be quite flexible in terms of source equipment and speakers I did notice that there were a few components that it didn't seem to play well with. The 402e is obviously designed with absolute performance in mind and as such should be paired with the best there is. Surprisingly, the 402e will let you know where your system may be lacking but never really at the cost of ruining your listening session. Can't say I've ever encountered that before.

## **Conclusion**

I've saved my biggest observation about the Krell Evolution 402e for last. Earlier I spoke about our ailing economy and how the high-end market place is undergoing some radical changes, some for the best and others not so much. I also said that the 402e was in some ways a bargain, which I don't think is a term I believe has ever been associated with Krell products before. Now I'm not suggesting the 402e's retail price of \$18,500 is something every man, woman and child can readily afford, however compared to other cost-no-object amplifiers, of which I consider the 402e to be one, it's one of the most affordable. I've heard a lot of great amplifiers over the years and have even reviewed a few in the months leading up to the 402e's arrival in my home and the 402e not only bested each and every one of them but it did so at a fraction of the cost.

The improvements found inside the 402e are going to be applied to all Krell Evolution amplifiers in the coming months, including the Krell Evolution 900 monaural amplifiers, which will set you back a whopping \$50,000 for

the pair. I'm not yet convinced that a 402e isn't all the amplifier any audiophile would ever need, but it is that good. It is hands down the best amplifier I've ever heard and the new benchmark for which all future costno-object amplifiers will be judged.

If the 402e I was given to review wasn't the only one currently in existence I would not be giving it back for I can't imagine listening to music or mastering another film without it. It is, quite simply, brilliant.