

SE Electronics

SE4 small-diaphragm condenser mic

The SE2200A large-diaphragm condenser (*Tape Op* #48) is one of my favorite mics. At \$300 street, it's easily one of the best deals in pro audio. Up until recently, I also had in my cabinet a matched pair of SE3 cardioid mics, which SE Electronics marketed as small-diaphragm condensers with Class A FET electronics. Personally, I would call the SE3 a medium-diaphragm condenser, as its capsule is 3/4" in diameter, and the mic is actually quite a bit more massive than the typical pencil condenser. The SE3, like many modern condenser mics, has a decent bit of high-end lift, peaking a few dB above zero in the 8-12 kHz range. Some of *Tape Op*'s contributing writers at WMBR Radio, who had these mics for a few months, felt that "instruments with lots of high-end (violin in particular) were made unpleasantly screechy," and "as general-use small-diaphragm condensers they weren't that versatile, but the high-end bump could be useful in poking through dense mixes." But my initial experiences in my own studio were very different. Instead, I found the high-end lift useful, and in most cases, very smooth, adding detail without being edgy; although one shoulder of the peak sits right where sibilance can get nastiest (around 7 kHz), most of the SE3's high-end presence is in the airier band just above. Only when placing the mic too close to a source did I experience overabundant sibilance, which explains how the engineers at WMBR, who do mostly single-room, live recording of bands, close mic'ing as much as possible to reduce bleed, were let down by the SE3. Moreover, I felt that the midrange was presented in a well-balanced manner by the SE3, without being too forward or getting lost underneath the highs—perfect for medium-distance acoustic guitar work—but the midrange would quickly get soupy at very close mic'ing distances. One other statement of note from the engineers at WMBR—the SE3 had to be aimed carefully or its high-frequency response would be unpredictable, as its pickup pattern was particularly tight near its high-frequency presence peak—not an issue if you're using it on a guitar amp but problematic on a dancing acoustic guitarist or if trying to use it too closely to a moving cymbal. But such are the woes of using a cardioid-only mic; fixed pickup pattern and voicing to a particular distance are inherent to the category. All this is an explanation as to why I wished the otherwise excellent SE3 had selectable pickup patterns.

Well, my wish came true. The new SE4 is basically a re-engineered SE3 with interchangeable capsules. When employing the standard cardioid capsule, it sounds exactly the same as the SE3, which makes the SE4 a great mic to begin with—same airy highs while retaining the same balanced manner. But where the SE3 failed, the optional capsules for the SE4 come to the rescue. For mic'ing at very close distances, the omnidirectional capsule is just wonderful. I'm thinking it was designed particularly for close-mic'ing because it's not truly omni (as my Earthworks omnis are). Not only does it exhibit proximity response—the lows ramp up in a very smooth and controllable way—but there's a noticeable change in the highs as you turn the mic relative to the source. The omni-equipped SE4 sounds great on snare shell (1" away) and acoustic guitar (12" out). It also works well as a room mic when positioned close to and pointing at the body of the piano in my live room. The hypercardioid capsule has a much more predictable pickup pattern than the cardioid, with great rejection even in the lower-mids at 135 and 225 degrees. More importantly, the highs don't seem to roll off as unevenly as they do with the cardioid capsule when the source moves off-axis. Furthermore, the hypercardioid capsule exhibits a dip in

frequency response in the 7 kHz zone where sibilance wreaks the most havoc, but there's still some airy lift above 10 kHz. I was rewarded with terrific reproductions of vocals, violin, top head of the snare, cymbals, piano, acoustic guitar, and even kick drum, while the precise and predictable pickup pattern was beneficial in controlling bleed.

As with the SE3 that it replaces, the SE4 can be purchased singularly or as part of a matched pair. The matched pair comes in a rather large and beefy flightcase lined with high-density foam with cutouts for the mics (with the standard cardioid capsules attached) and included shockmounts and stereo bar (with adjustable spacing). There are also four cutouts for the optional capsules. The capsules are available either as a set of single omni and hypercardioid capsules (one of each) or as a set of matched pairs (four capsules total). Curiously, these come in a beautiful wooden box. An added bonus is that the manufacturing quality of the accessories seems improved; the SE4 shockmounts, for example, are more refined in fit and finish than the SE3 shockmounts from two years back. My only wish now is for SE Electronics to manufacture a side-address, figure-8 capsule for the SE4. (SE4 \$349 street, SE4 pair \$699, capsule kit \$349, stereo capsule kit \$699; www.seelectronics.com) —AH

Algorithmix

Chromium Series K-Stereo plug-in

Algorithmix, in conjunction with Bob Katz, has released a software incarnation of Digital Domain *K-Stereo*, a patented process that can extract ambience and depth from existing recordings, allowing for post-mixdown adjustments. The hardware version was reviewed in *Tape Op* #45. Check out your back issues or the manufacturer's website for more details on the process.

To my ears, the software sounds nearly identical to its hardware parent, but has the added benefit of multiple instances and a graphical user interface. According to the design team, the plug-in uses double-precision 32 bit (64 bit total) floating-point arithmetic, and the box uses 32 bit float. Both run the same exact algorithm. And while the original unit was ergonomically straightforward, having all of the controls available at once—plus the visual of the width and depth fields—makes the plug-in a wonderful incarnation of the original.

I tested the plug-in extensively in an attended mastering session. We all know that things tend to break when a client is present. I was able to shift settings during playback; bypass and enable the plug-in; and bring up numerous instances without any problems. Like the original, I was able to use *K-Stereo* to give a track that special sparkle that was missing or to bring out perceived space on a track that sounded narrower than the rest of the CD. One word of caution—depending on the setting, the *K-Stereo* process can make your average level sound louder to your audience. It may be necessary to adjust your gain staging in other areas of the chain; otherwise, the *K-Stereo*-processed track might jump out.

If you have ever had the pleasure of visiting a well-appointed woodshop, you'll encounter specialized tools that allow a master craftsman to handle special requests. Mastering engineers are in a similar situation. Sometimes there are requirements that can't be fudged or simulated. The proper tool is necessary. The *K-Stereo* plug-in is such a tool. This is not an effect that you should use on every song, but when you need it, there is nothing that comes close to sounding like it. (\$999 direct; www.algorithmix.com) —GH

Mackie

U.420 & U.420d 4-channel mixers

When I first heard about the U.420 compact mixers from Mackie, I immediately realized where they would be effective. I asked Mackie to send the U.420d version to my colleague Brandon Miller, who is a working DJ in the modern sense of the word, producing music at home and then presenting that music in performance. Concurrently, Mackie sent me the U.420. Brandon's take on the mixer follows my quick opinion.

Mackie isn't the first company to release an integrated mixer and interface. Putting a mixer and interface together into a single package seems like a no-brainer idea, but most of the integrated systems I've seen aren't for the plug-it-in-and-make-music crowd. Instead, they still require some amount of geekery to configure and use, especially when you factor in concepts like computer-induced latency and overdubbing. The U.420 and U.420d, on the other hand, really are as no-brain-required as you can get—perfect for the musician who'd rather make music than put on a propeller-hat. In fact, these Mackies are configured out-of-the-box for zero-latency direct monitoring by default. (Why aren't other interface/mixers designed this way?)

Anyway, before I start repeating what Brandon said in his review below, let me point out a few things he skipped. As with all Mackie products, the manual is well-written, gets you up-and-running quickly, walks you through all the typical usage scenarios in detail, and is entertaining. No pocket protectors needed, even if your needs are more complex than you think. The U.420 is the simpler of the two models, relying on rotary faders, four stereo line-level inputs (with a single instrument-level DI and a phono preamp). The U.420d adds mic preamps with linear faders and a crossfader. They're both suitable for a wide array of desktop production and on-stage performance duties. Although they're not as bulletproof as Mackie's metal-chassis VL3 compact line, they are heavy enough that hanging cables won't pull them off a desk. Also, the three-band EQ, available on all four stereo input channels, is worth mentioning. Each band can be turned down to *kill* for extreme filtering effects. Using the sweepable mid as a band-cut is especially cool! Enough said—let's move on to Brandon's review. —AH

Mackie sports an amazingly diverse lineup. From loudspeakers to preamps, studio monitors to control surfaces—they've got a piece of gear in each category. Amazingly enough, they do them all really well. This latest offering in their compact mixer lineup is no exception. A really exciting piece of gear here for those that have been tied to an audio interface for the computer and a separate mixer for outboard gear that needs to play outside of the computer. The Mackie U.420d packs an unbelievable amount of features into a compact, super-affordable package. For less than the cost of a PreSonus FireBox or an M-Audio FireWire 410, you get a FireWire interface and fully-functional standalone mixer whose functions work flawlessly together right out of the box in only the time it takes to patch in your cables. The setup into which I introduced the mixer consisted of a pair of CD turntables, a vinyl turntable, a DJ mixer, a separate analog mixer, a digital effects processor, an iPod, a Mac desktop, and a pair of studio monitors. Without the U.420d, I was running the turntables and effects processor into the DJ mixer which then had two sets of outputs, one going into an analog compact mixer and the other going into a FireWire audio interface and into the computer. I needed the analog mixer for latency-free monitoring but needed a central box for the speaker connection. But I didn't always want everything in the studio powered up, and sometimes I wanted my computer power available to run other applications, or I simply didn't want the

added steps to get going. The *U.420d* really has the ability to replace three pieces of gear in that setup: the DJ mixer, the analog mixer, and the FireWire interface. With two stereo line inputs, two phono preamp inputs, two mono Neutrik Combo inputs for mic/line/instrument-level, 1/4" stereo outputs, 1/4" stereo aux sends, two vertical faders, one horizontal fader, and a FireWire interface, I can route absolutely everything mentioned into the *U.420d* and into the computer at will.

It really starts to get exciting when you get into how this mixer integrates with your computer. My Mac with Logic Pro and Ableton Live needed no software or driver installation to recognize the interface (although Win XP requires driver installation), and I was digitizing vinyl records (a project of mine) five minutes after unwrapping the mixer. Another great feature of this mixer is the loop-out button that tells the mixer whether or not to include what it receives via its FireWire input into the mix that's sent back through the FireWire port. This feature is a serious standout, and the basic idea is that you can choose to send the computer only what's played into the mixer (e.g., overdub a vocal or guitar on a track you've arranged in any DAW), or you can choose to send the sum of the mixer's analog inputs and the feed from the computer back to the computer (e.g., a stereo mix of a live set including outboard instruments and gear alongside loops, effects, samples, and songs emanating from your computer). All the dials and faders on the mixer are laid out in a compact, yet easily-accessible and fully-functional way. It's got an LED output meter and a large master-volume knob down the center of the box that make monitoring and controlling what's going on in your setup super easy. Latency during recording is always a big issue with any interface and Mackie has a decent solution in the way that they've wired the headphone outputs. It's wired before the main volume knob so that you can monitor your input (before it's been routed through the computer) mixed with the computer's output in your headphones with the master volume down, thus eliminating any latency. (The only drawback here is that you aren't able to monitor any effects or plug-ins you might be using on the track you intend to record since you're monitoring the signal before it's processed. But as explained in the manual, you can feed the track being recorded back from the DAW to the mixer, and as long as you can reduce latency settings in your DAW to acceptable levels, you can monitor the effects while you record.)

A few minor issues with the box are the tricky TRS connectors in the back (connections were snug and didn't affect performance at all, but a few cables took some force to get into place) and the lack of more robust software routing. If I want to run Ableton Live through this mixer alone, I don't have the ability to route a separate cue mix to just the headphones for cuing sounds before sending them to the master output. But these are really minor issues when weighed against the incredible functionality this mixer offers. A truly fantastic piece of gear for those looking to get a solid standalone mixer that includes some really unique and powerful FireWire functionality, those wishing to un-clutter a home studio but maintain or improve I/O options, those wanting an instant recording studio at an amazing price, or those seeking robust portability and ease of use for mixing and recording of live gigs. At under \$300 street and coming bundled with Tracktion (Mackie's full-featured DAW), the *U.420d* is an easy sell, especially considering that it replaces three devices—DJ mixer, utility mixer, and interface—at my home production desk. (\$299.99 & \$359.99 MSRP; www.mackie.com)

—Brandon Miller brandon@mavrik.us

Burgin McDaniel *Komit "Treehouse"* Compressor/Limiter

This could be the shortest review I've ever done. The *Komit Treehouse* is simple to use, sounds great, and is sensibly priced. If you must have the gory details, read on. The *Komit* stirred up a local buzz when Stuart Sullivan of Wire Recording in Austin wouldn't send the prototype back. He is into the old-school sound. Burgin McDaniel is a new company, but the founders—Kevin Burgin and Travis McDaniel—are old hands from Rupert Neve Designs. So I got in touch with Kevin to see if the *Komit* was all hat and no cattle, as they say in Texas.

The *Komit* is a compressor and limiter—two complete circuits. It comes as a 500-series module and slides into a lunchbox or rack, which provides common power. But Burgin McDaniel also supplies it as a Producer's Pack *Treehouse*—two units in a handsome, black-walnut box with a separate power supply unit. This is what I received, which is perfect for integrating into a project studio or for the engineer on the go. The *Treehouse* shell was a prototype and included a now redundant link switch, as well as a power light. The PSU isn't a wall wart, thankfully, but an inline brick, like laptops use. The attached 3 ft power cable connects to the rear via in a five-pin plug. The other end of the PSU connects to the wall using a standard, removable IEC power cable for easy replacement, while providing extra length for those always poorly-located wall sockets. The whole thing is amazingly light and easily one-handed via the recessed grips at the top. And if your travels take you across electrical borders, a simple change of PSUs is all that is needed to keep it happy.

Two screws fasten the cards to the *Treehouse*. I was warned not to pull the card out completely, in case I disconnected it from the rear, but it pulls out far enough to change between three operating-level settings via jumper pins, like on a computer hard drive. I'm no electrical engineer, but everything seemed well-spaced and cleanly built. The *Komit* has a balanced, floating-transformer in/out design and a discrete signal path. The compressor uses a THAT Corporation VCA like the SSL, if that gives you a hint of the sound of the unit, or lack thereof. The rear plate holds the balanced XLR I/O, and I showed more sense than I usually do since I didn't take it off to see how the card connected to the I/O.

Using the *Komit* itself couldn't be simpler. At the top is a scroll-type meter lit with a subtle green light. The numbering is too small to read unless you get up close, but the hammer with a red head explains all you need to know about how hard the compressor is working. I seldom needed to refer to it, anyway. Below the meter is a stepped knob for the limiter. One expects the signal to flow from top to bottom, but with a total of only three knobs, it wasn't hard to remember that sound within the *Komit* went up, not down. The limiter is a diode bridge set at a 20:1 ratio. The output level goes from -10 to +21 dBu in 11 solid clicks, while the off position makes it an even dozen. From -10 to +14 takes only 4 steps, while the sensitive upper range is in single-decibel increments. The limiter output is more or less set-and-forget, letting you concentrate on the sound coming in without worrying about the level going to the recorder. This is great for the singer who decides to throw in a bellow during a ballad or the guitarist who discovers 11-plus on the amp during a take, ruining your carefully calibrated levels. You'll have to find another excuse other than "we got digital distortion" to dump their inspired *ad lib*. Severely-limited signals look like a flat line once they get to the computer screen—with no nasty overs.

Below the limiter is a three-position compressor attack/release switch marked with musical-looking hieroglyphics. These are in keeping with Burgin McDaniel's design philosophy—keep it simple and use your ears. The left position is fast, middle is program, and right is slow. Below the switch and to the left is a link switch (not on the prototype modules—hence the switch on my box). Although the faceplate is small, there is plenty of room to grab and twist each knob without rubbing anything else—another plus for keeping it simple. All three knobs are surplus military stock, olive with a white indicator stripe that glows a phosphorescent green in the dark after exposure to light.

The compressor make-up knob is a smooth potentiometer that goes from unity to +22 dB. This knob provides most of the sonic fun, since it lets you drive the limiter into distortion. And unlike a lot of lower-cost hardware and most software, the distortion sounds good (and the limiter keeps it that way into the A-D converter). Even without compression, you can pleasingly roughen up your sound. The highs don't get harsh and the bass remains full. I was hoping for a little more resistance from this knob since I used it as a volume control at times, but it is still very smooth. Below and offset to the left is the compressor-ratio pot. This, too, is marked with hieroglyphics, but easily translated. To the left is a full circle—no compression, while a sequence of ever-squashed ovals denoting more and more compression. According to Burgin McDaniel, the ratio goes from 1:1 to 10:1—easy to understand and again forces you to use your ears, not numbers. Below that is the in/out button for both circuits. These three knobs and three switches/buttons provide all the control you have for the unit, but is it enough?

The *Treehouse's* arrival couldn't have been more timely, as I had a demo recording scheduled the next day in my project studio. To make sure everything was in working order, I strapped it across my interface's inserts and plugged in my Ensoniq Fizmo keyboard. It seems counterintuitive that adding more electronics sounds better than straight wire, but the old Fiz had never sounded so good. It is a wonderful synth but distinctly digital, and just running it through the *Komit* made it sound well, bigger. A little compression really brought up the tail in its pads, which are full of delicate tinkles that usually die out too quickly. The Fiz also has a nice Rhodes sound I use, and through the *Komit*, I didn't need to add my usual bit of virtual analog distortion to give it some bite; the *Komit* provided the real thing.

During a demo recording session, I used the *Komit Treehouse* on the drum overheads for the rhythm section takes. One of the songs had several, surfer-style tom accents, and the *Komit* crushed it just like it was 1964. The same song also had an incessant high-hat part that only a drummer could love. The *Komit* soaked up most of the bite, meaning I could fit it into the mix with a little volume control rather than drastic EQ. A cover of PJ Harvey's "This is Love" included a great cymbal part. The *Komit* complemented it perfectly. Like the high-hat, it rounded off some of the brashness, while the program-setting attack eased into the sound and gave a gorgeous sustain to the body. During mixing, this sustain sat comfortably in the mix at all kinds of levels. The drummer preferred this home-brewed drum sound to that of a big studio they record at. I'd like to take credit for it, but most of the praise had to do with the *Komit*, I'm afraid.

I also used the *Komit Treehouse* for overdubs. The surfer song had a short Dick Dale guitar riff laid over one of the tom rolls. We DI'ed the guitar out of an effects box, and