

## Recording Magazine, September 2004 Eureka



By Matt Seiler

I first became aware of PreSonus in early 1997 when I purchased an ACP-8 (since replaced by the ACP-88). It gave me a big bang for my buck and I still rely on it today. I was eager to find out if the newest box from PreSonus, the Eureka Professional Recording Channel, would be something I could rely upon as heavily.

### At first glance

The Eureka is a single-space rack unit composed of four sections: Preamp, Compressor, Equalizer, and Master. The face is a thick slab of milled aluminum and the metal knobs are finished in a striking blue. It is densely populated with knobs, buttons and a brightly lit VU meter. The detented knobs have a slow, solid travel and the illuminated buttons have a satisfying click. For legibility of settings and for delicate knob access with any but the smallest fingertips, the unit wants to be mounted at eye level in your rack.

Setting up was a breeze. The slim manual is just about right to get you going and keep you there. Use of the Eureka is very intuitive and the manual stayed in the box after about the first hour. After the unit had been on for most of a day, the top of the unit was still cool to the touch. You should have no problem packing this box into a tightly spaced rack.

### The ins and outs

The 1/4" jack visible in the front panel's preamp section is a 1/4" TS connector for high-impedance instrument signals. When an instrument is plugged into this instrument input, the microphone preamplifier is bypassed and the Eureka becomes an active instrument preamplifier. The rear has a mic input on XLR and a line input on a 1/4" TRS jack.

The Line button in front selects the line input on the back as the input in use. When the Line input is in use, the microphone preamplifier stage is bypassed and thus the Gain, Impedance and Saturate controls are inactive.

The rear panel has dedicated send and return jacks for inserting things like reverbs into the signal chain. Output is carried via balanced 1/4" TRS and XLR connections, both of which are active at all times. Wall voltage is handled via IEC cable and there is a power switch on the rear panel.

### The mic preamp

On the front left are the controls for the class A transformer-coupled mic preamp that doubles as instrument preamp and line input. Pushbuttons allow for 48 volts of phantom power, a 20 dB pad, a highpass filter set at 80 Hz and a handy phase reverse switch.

Input signal lights show -20 dB, 0 dB, and clip levels, and they all flicker more or less brightly based on the strength of the signal present at that particular input level. An Input Gain knob ramps up to a solid +54 dB of boost—very handy for low-output sources, although some older ribbon mics might want even more gain.

The Impedance knob allows you to select one of five different settings to match or intentionally mismatch the preamp to the microphone (and no, it won't fry your mic!). This changes the filter settings inside the Eureka. The five preset settings range from 50 to 2500 ohms of impedance. More on this later.

The Saturate knob is used to change the amount of harmonic distortion being added to the signal. Turning the knob boosts the signal's even harmonics to emulate the effects of a tube. Reportedly this feature works by manipulating the drain current of the FET input buffer of the preamp. [Have PreSonus verify this at fact check—Ed.]

### Compression and eq

Following the preamp is a compressor with selectable hard or soft knee settings and a bonus side-chain highpass filter built right in. The fully parametric equalizer has 10 dB of boost and cut, in three overlapping bands, and can be bypassed via pushbutton. And—a bonus—there's a button that can reverse the order of the eq and the compressor in the internal signal chain.

The VU meter is switchable to show either input level or gain reduction levels. In gain reduction mode the needle hovers around zero dB and will wiggle to the left when it's compressing, showing you the number of dB being cut. Pretty cool, and not a common feature at entry-level prices.

First, as you'd expect, you have to adjust the input trim to match the individual microphone, but once that's done the sound is silky and smooth and the job of adjusting the compressor and eq yields very satisfying results.

The compressor politely does its job without any artifacts. I've grown so used to the heavy-handed action of inexpensive compressors that I had to double-check to make sure the Eureka's compressor was actually on. Smooth is definitely the word. Kudos to PreSonus for including such quality at this price point.

**Direct Injection for insomniacs**

Entire evenings went by while I was playing guitar through the Eureka during the review period. Two Carvin guitars with double-coil pickups sounded smooth and lush. The 7-string was a really good match with the Eureka and, quite frankly, it never sounded better. Clear, clean, low and lush. Heavenly.

An Epiphone Emperor jazz guitar and the Eureka were an unbeatable team. The DI sounds, with just a touch of added reverb, were sweet enough for any keeper tracks I could imagine; and I'm now planning on making a few new ones! Rapture on demand. (No, really!)

Playing a Carvin Bolt with three single-coil pickups and then adjusting the compressor settings I got a really spanked, chicken-pickin' sound. By going for a subtler style on my Danelectro baritone guitar things laid out nicely. An Ovation 12-string electric-acoustic was a challenge at first, but the eq and the compressor on the Eureka got me where I needed to be.

So, even if it did nothing else, just as a guitar DI the Eureka is on my 'Absolutely Need To Own' list.

**And then actually used as a mic pre...**

The first test was on my speaking voice (mid baritone) into a Shure KSM32 medium-diaphragm condenser mic. By adjusting the Impedance selector I was able to alter the amount and character of the mic's proximity effect. Dialed up to 2500 ohms and speaking about three inches away from the microphone, I got that big vintage FM deejay sound. But it also picked up background noises from a room away.

Dialing down incrementally to the final 50 ohm position I lost a little more of the intimate low end with each step, but I also got rid of all the unwanted room noise in the process. As the impedance setting got lower the mic lost a shade of its low-end thickness, but that can be a good thing depending on your source. Overall this type of

impedance control is a very handy tool to have. When I used it in combination with the lowcut filter, the rumbling sound of my forced-air heating system went away entirely.

The Saturate knob helped shed any brittleness in the sound. I found that I left the knob at about the 12:00 position most of the time and it did the job handily.

I used the Eureka on a tracking session with a female singer, and for a male singer/songwriter who plays 12-string guitar as he sings. The Eureka's very musical eq helped lend some strength where needed and the compressor did its job nicely and, again, without artifacts.

I was thankful for the fine-tune capabilities of the parametric eq when the female vocalist hit a particularly strident note. On a retake I was able to dial in the range of that particular note and dial it down a bit, saving the part. And the highpass filter did its job nicely in taming sibilance.

When A/B comparisons were made against the preamps in my Mackie 8-bus, the Eureka was full and luxurious and the Mackie was clean, but relatively lifeless. The Eureka's warm and intimate nature won hands down. Perhaps that wasn't a fair test given the price tag per preamp in my 32-channel mixer. But it should give everyone a handy reference standard for my comparisons.

#### A bit about bits

Just to make things really interesting, the Eureka is available with an optional digital I/O package, which was not included on the review model. There is space behind a removable rear-panel plate for the optional card. This is a 24-bit/192 kHz digital output card, giving you AES/EBU and S/PDIF outputs in addition to an auxiliary 1/4" TRS analog line input.

The reported benefit to the TRS line input on the add-on card is that you can connect two Eurekas together to share one digital output card. Since the panel is removable with a standard Phillips-head screwdriver, adding the card yourself should be a straightforward process, but you'll have to visit your local music retailer to check this option out yourself if you think it'll come in handy in your studio.

#### All in all

It might be easy to mistake the Eureka for being just another mic preamp. There's a ton of them out there in this general price range and you might be tempted to not give the Eureka a second thought. But if you did that you'd miss out on all the neat things that it has going on under the hood. The Eureka goes well beyond just being a

preamp for microphones and can be a stalwart companion while both tracking and mixing.

The Eureka is a sexy-looking box that does an admirable job of maximizing the potential of your vocals and instrumental parts. As a vocal preamp it smoothes everything out and gives you a silky polished sound. And the addition of the Saturate knob and Impedance selector make the Eureka go straight to the head of the class.

Most of all, don't plug in a guitar unless you've got several hours available—you're not going to want to put it down. When you throw in the wide range of DI tones you can get from this box, the Eureka isn't a channel strip—it's a steal!

Matt Seiler ([seiler@recordingmag.com](mailto:seiler@recordingmag.com)) is a recording engineer, guitarist, and studio furniture designer in the Chicago area.