MIX
Professional Audio and Music Production

KRK Systems ERGO Room Correction System

FIELD TEST

by Barry Rudolph

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KRK's Enhanced Room Geometry Optimization (ERGO) is a stand-alone room acoustic correction system built into a hardware monitor controller unit. Its proprietary RoomPerfect™ technology corrects a room's phase and frequency anomalies with the clear aim of realizing an acoustic space close to the so-called, AES "perfect room" where crucial mixing decisions and overall sonic balances will translate to the outside world.

Simple, Yet Powerful

The ERGO controller has a small footprint (about 7 ¼ X 4-inches)--it's a sloped top unit dominated by a large, lighted encoder knob that "talks" to a PGA2310 Burr-Brown volume control chip. Besides a volume control and A/B speaker-selector buttons, there is a lighted thumbwheel level control for headphones mounted on its side. The Focus/Global button toggles between Focus, which focuses correction on the mixing "sweet spot," and Global for a wider area of correction. Holding the Focus/Global button triggers Bypass mode.

ERGO's rear panel has: ¼-inch TRS jacks for balanced analog inputs and A and B speaker outs, S/PDIF RCA jack input, headphone jack, two Firewire ports, a calibrate mode button, and the measurement microphone's input. As a Firewire DAW interface with onboard A/D and D/A, you could record stereo into ERGO's analog inputs and monitor out using Firewire or the S/PDIF input for Pro Tools.

The ERGO system uses 1,024 dynamic filters running at up to 96kHz sample rates on a Analog Devices 400MHz Blackfin DSP chip to apply electronic corrections in the band of frequencies from 20Hz to 500Hz.

Why only up to 500Hz? KRK decided to tackle the foremost acoustic problem in small spaces: low frequency response irregularities. By narrowing the focus of frequencies and by using all available DSP, ERGO achieves greater precision in both the measurement and subsequent correction processes.

To measure a room using the included measurement microphone, ERGO requires a FireWire connection to either a PC or

Mac running the ERGO Cal software. There is no need of a DAW system--ERGO works for stereo or home theatre systems too. Once a measurement is made, its data is stored inside of the unit with no further computer connection required.

At the Proving Grounds

Here at my Tones 4 $ Studios, my mixing space is a ten by ten foot alcove with no wall behind the mixing position--it opens out into my living room. I have huge low-frequency issues. To try to reign in the problem, I installed bass trapping, diffusion and absorption panels. Afterward, I still heard so much bottom-end information in the 300 to 500Hz range that I (wrongly) compensated for it, which resulted in mixes that sounded very thin and spectrally poorly balanced when played outside of my room.

After installing the software and connecting ERGO, I followed the onscreen steps and measured my room at different points at least 1 meter apart. Each speaker alternately emits various test signals at about 90dB SPL with each additional mic position adding to the system's "Room Knowledge." Technically the highest Room Knowledge possible is 99% but since I have a heavily treated room, I was able to obtain a 100% reading after eight mic positions. This process is easy, not super critical and takes about 15-minutes

ERGO Measurement Mic

I normally monitor my Pro Tools HD Accel rig digitally using the Digidesign 192 I/O's AES/EBU enclosure output and the D/A converter in a Crane Song Avocet monitor controller. So I connected ERGO between the analog stereo monitor +4dBm line outputs of the Avocet's speaker set 1 and my ADAM Audio S2.5A powered monitors. In this way, all connected monitor sources (CD player, 2-track deck, video, etc.) benefit from ERGO's correction.

I also used ERGO's S/PDIF input and preferred its D/A conversion (using an AKM AK4396 chip) to the Avocet's conversion. The disadvantage of this hookup is that only the audio coming out of a DAW gets room correction. But if you need a monitor controller, by using ERGO's D/A or FireWire I/O you avoid using an extra pair of AD/DA conversions for the most pristine monitor path possible.

Ergo, My Mixes Improved

PRODUCT SUMMARY

COMPANY: KRK Systems
WEB: www.krksys.com
PRODUCT: ERGO
PRICE: $799 (MSRP)

PROS: Small size. Provides excellent room acoustic correction and AD/DA converters.

CONS: Volume control has "zipper" noise. Could use more inputs.

ERGO has made a marvelous change in the accuracy of my monitors. With the LF problems ironed out, the individual tracks within the mix are clearer, making it easier to discern problems and make more accurate EQ decisions. Stereo imaging is the best I've heard, which makes precise pan positioning easier and the application of stereo-width effects--reverbs, delays, micro-delays and phase trickery--more exact. The only downside to using ERGO was "zipper" noise when adjusting volume. (KRK is aware of this problem and is working on a solution.) Also, there should be multiple monitoring source selection switching.

My clients report that my mixes are now dialed in and spot on. There is solid low end without tubbiness and clarity without excessive treble boosts; vocals sit correctly, and dynamics respond accurately. I've been using ERGO mixing every day during a two-week period, and it has improved the quality of my work--how did I ever function without it!!!

Barry Rudolph is an L.A.-based recording engineer. Visit his Web site at: WWW.BARRYRUDOLPH.COM

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