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COVER PHOTO BY JIM SNYDER

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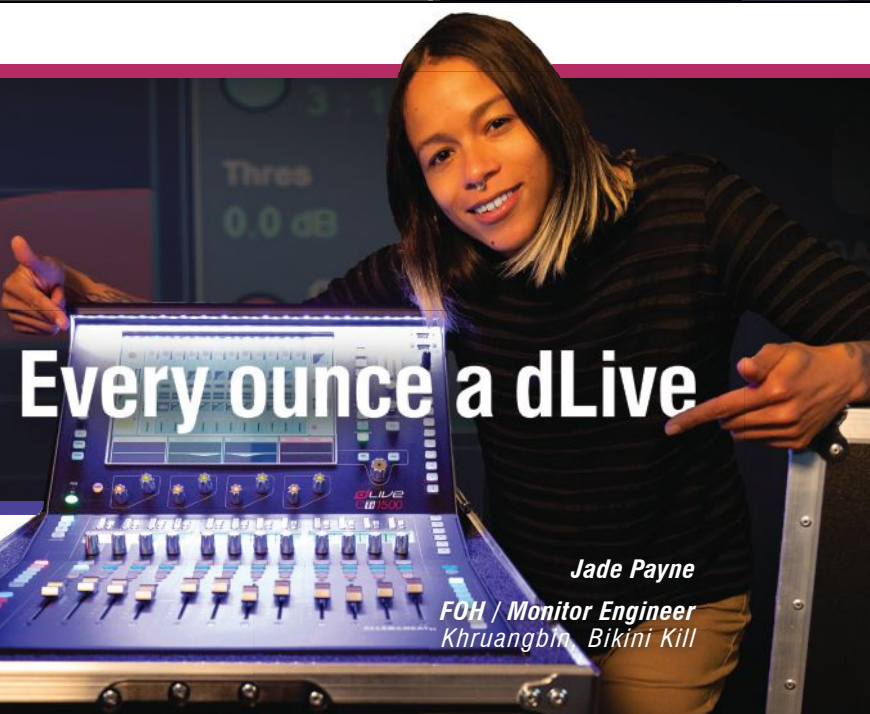


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Sound Sanctuary
Miking Drums in the Church

CTi1500

Engineered to strip out as much weight as possible, while retaining tour-grade structural integrity and a first-class user experience, CTi1500 packs in 19 customizable SoftKeys, 72 fully assignable fader strips, and full access to the 96kHz 160x64 XCVI FPGA power of dLive in a 11.5kg / 25.4lbs package.



Every ounce a dLive

Jade Payne

FOH / Monitor Engineer
Khruangbin, Bikini Kill

Radial Engineering HDI Direct Box

By George Petersen

For a lot of people in the live audio industry, the words “Radial Engineering” are almost synonymous with the phrase “direct box.” There’s a good reason for that, as the company has more than 30 different direct boxes, ranging from simple, single channel passive units to multi-channel rackmount devices.

So does the world need another direct box? Maybe not — unless it was a completely new approach by senior design engineer Craig “Hutch” Hutchison (formerly of Rupert Neve Designs and Manley Electronics) who joined the Radial Engineering team just over two years ago and wanted to apply his own personal flavor to the project with a new slant on direct box design.

The result was the HDI, a high definition, studio-grade direct box and preamp for studio recording or live touring applications. The HDI is Radial’s flagship direct box, offering unique features for capturing electric/electronic instruments.

Essentially, the HDI utilizes guitar amp topology and industry-standard Jensen transformers to elicit vintage warmth and richness. Four parallel circuits are employed within the HDI, yet this complexity is balanced by a streamlined and elegant feature set that produces immediate results. On the design behind the product, “virtually all direct boxes are what you might call utility boxes,” Hutch explains, “They have a ¼” input and an XLR output and virtually no controls, other than maybe a ground lift or something like that. With the HDI, I wanted to go beyond that basic utility functionality, while retaining the essence of the function of a DI. I wanted something that was more creative, fun, inspiring, and musical.”

Asked whether the design is Class-A or Class-AB, Hutch explained: “I tend to be hypersensitive to Class A/B artifacts and take steps to eliminate or drastically reduce those types of distortion. That is part of my signature sound. All the op-amp parts of the audio path are technically A/B, but biased into Class-A and behave sonically as Class-A, using FET constant current sources on every amp stage to do that. The output line driver is discrete Class-A and push-pull. Also, the ‘Color’ path is discrete Class-A, with minimal local feedback, zero global feedback.”

» Getting Physical

The HDI is 100-240 VAC powered and housed in a rugged 8.25x8.25x3.5” steel enclosure with a ¼” thick, slab aluminum front panel. It includes ears for rack mounting and two units can rack side-by-side in a 2U space. Radial has a well-deserved reputation for reliability and the HDI’s rock-solid construction and quality components throughout (including custom Jensen transformers) reflect this philosophy.

Inputs are provided on front and rear panel ¼” jacks along with a thru jack for connecting to an instrument amplifier. The rear panel also features male XLRs for the transformer-isolated mic and line-level outputs; a -15 dB attenuation switch that pads the XLR line output; a 3.5mm mono Synth Input for connection to modular synths; and a ¼” Processed Output for feeding the affected signal to a guitar amp or instrument effects units.



» Diving In

Looking at the front panel offers an immediate indication this is not the “usual” D.I. box. Besides the two ¼” input/thru jacks, there a normal/hi-Z impedance switch; 20-step detented rotary controls for Level, Color and Presence; an illuminated VU output meter; three-position switches for activating the onboard opto compressor; high-pass filter (flat / 40 Hz / 100 Hz @ -6 dB/octave); and toggles for AC power and ground lift.

The Level control lets the HDI accommodate a wide range of input sources, yet can also drive the opto compressor harder for more exaggerated coloration.

The Color control should be thought of as a “balance” control between ultra-clean (full counter-clockwise) operation and an increasing amount of amp-like distortion and warm transformer saturation characteristics in the other direction.

The Opto circuit only affects the clean channel of the Color knob. As the Color control is rotated towards more distortion, less of the clean channel is present at the HDI’s output. The Opto switch bypasses the compressor in its lowest position. The middle position has a higher threshold before the peak reduction kicks in and the highest setting has the lowest threshold — hence more compression. The LED for the Opto compressor does not illuminate when the switch is engaged, but glows to indicate when gain reduction is applied and becomes brighter as more gain reduction occurs.

The Presence control can help a signal cut through a mix by emphasizing high and upper mid frequencies. Having detents on the Level, Color and Presence controls is a nice touch in terms of setting repeatable connections, but a lack of edge markings around each knob makes that slightly more cumbersome.

The Hi-Z switch approximates the Hi (2 meg Ohm) and Lo (200k Ohm) inputs on a vintage amplifier.

» In Use

Over a period of months, I had the opportunity to use the Radial HDI on both streaming performance and studio tracking sessions. It definitely breaks the “traditional” mold on what is considered a direct box and as such, it’s a formidable tool in production.

Here is a product that can provide a range from pristine cleanliness to a phat in-your-face thickness in a matter of seconds, especially once you’ve spent 10

minutes with the product and understand the simplicity — yet depth — of the controls. And this is the way that the HDI really shines — you can get the sound you want in a hurry, especially in live situations where every second counts.

On bass, without going overboard, you can add a touch of growl (or punch it WAY up) and keep dynamics under control without complicated gyrations. The one-control compressor operated seamlessly, without audible artifacts and adding a little definition with the presence control was a no-brainer. The Hi-Z impedance switch had little effect on active pickups, but on passive pickups or acoustic guitar piezo transducers, it offers a nice — though subtle effect and free of the edginess that piezos can sometimes exhibit.

With all the HDI’s capabilities to color and shape the sound, it’s too easy to ignore that fact that its ability to present a “clean” signal — whether on bass, guitar or other stringed instruments is transparent and pure.

The output meter is responsive and fast and the +20 marking on the scale refers to +20dBu, although the HDI is capable of producing max output levels of +25dBu. And having the choice of a mic or line output is a nice touch. However, I would have preferred that the -15 dB pad switch on the line output XLR feed was recessed, as the control is easy to inadvertently activate when moving the HDI around or reaching behind the unit to make a connection.

The main downside of the HDI is that with the unit being pretty far from the FOH position, you have to work with a player who can be trusted not to get creative and “improve” your settings after sound check. Also, at \$799, it’s pricier than a \$199 Radial J48 and probably not my first choice D.I. in a “three bands/night” thrash club, but in the right setting, the Radial HDI is amazing.

FOH



Rear panel has separate XLRs for line- and mic-level outputs

At a Glance

A New Slant on the Direct Box

Radial sidesteps the “purity is everything” approach with a versatile active direct box that provides color and sound shaping.

Radial Engineering HDI Direct Box

- PROS**
- Flexible control of tonality
 - Pristine audio
 - Rock-solid build quality
- CONS**
- Pricier than the usual direct box
 - Rear pad switch can be accidentally bumped

STATS

Configuration	Active Direct Box
Power	100-240 VAC
Outputs	XLR line, mic transformer balanced
Frequency Response	1 Hz - 100k Hz +0.25/-3dB (line out)
Dynamic Range	112 dB (20-20k, unweighted)
HPF	-6dB/octave, 40 Hz / 100 Hz switchable
Dimensions	8.25" x 8.25" x 3.5"
Weight	5 pounds
Price	\$799
Manufacturer	Radial Engineering
More Info	radialeng.com

Dial Up The Color



HDI

High Definition Direct Box

The HDI is Radial's latest flagship studio-grade direct box and instrument preamp, with a streamlined yet powerful feature set designed to produce superior sonic results within moments. A color control knob allows you to blend between an ultra-clean signal path and amp-like character that imparts unique drive and grit onto the signal, employing an oversized custom Jensen transformer for additional saturation.



Take the studio on stage
www.radialeng.com