

Cabletek/Radial JD1 and JD4 Direct Insertion Boxes

by Russ Long

With the amount of emphasis being placed on cutting edge technology, it is no surprise that the ever-important direct insertion box — more commonly known as the DI — and its contribution to the sonic chain is often overlooked. A typical pop record today often has 40 or more tracks of audio that pass through a DI box in the recording process, and a typical live performance often has a dozen or more channels that require a DI box. It is for this reason that choosing the proper DI is as crucial as ever.

In my experience, there are two approaches to selecting a DI; both try to achieve an end result without introducing harmonic distortion, phase shift or loss of linearity. The first approach is to choose a box that purposely alters the sonic characteristics of the source. This usually means an active device that often has a tube circuit to add warmth or punch. Some excellent boxes in this category include the Demeter Tube DI and the Gas Cooker Tube DI.

On the other end of the spectrum are direct boxes that pass audio with the least possible deviation in the original signal. This is the category that the Cabletek/Radial JDI and JD4 (a rackmounted four-channel version of the JDI) fall into. The JDI and JD4 are linear from 20 Hz to 80 kHz, free from distortion throughout the audio range and show virtually zero phase deviation.

Features

The world-renowned JT-DBE transformer is the heart of Cabletek/Radial's passive JDI (\$239.39) and JD4 (\$849.99) direct boxes. Jensen's transformers are considered by many to be the world's finest, and Cabletek/Radial's commitment to make them the center of the company's DIs proves its "no compromise" approach to equipment design. The performance of the Jensen transformers has a 20-year warranty (the direct boxes themselves have a three-year warranty).

The JDI is equipped with a ground-lift switch that isolates the ground on the balanced XLR output. The ground-lift switch should be kept off in most circumstances. If there is a grounding buzz or hum, lifting the ground usually eliminates the noise.



At a Glance

Applications:

Recording studio, project studio

Key Features:

JDI: ground-lift switch; pad switch; merge switch; filter switch; 1/4" jacks. JD4: rackmount four-channel version of the JDI.

Price:

JDI — \$239.39; JD4 — \$849.99

Contact:

Cabletek/Radial at 604-942-1001; or circle **Reader Service 71**.

The pad switch introduces a -15 dB pad into the circuit. This lets the user adjust the box's gain range to obtain the highest possible signal-to-noise ratio.

The merge switch allows the JDI to be used as a passive 2:1 mixer. This lets two independent sources (i.e., two mono keyboards or two acoustic guitars) be merged into a single mono output. This feature is very useful in live situations where there is a limited number of DIs or desk inputs. There is no volume control so the levels must be mixed by adjusting the output volume at the sound source.

The filter switch introduces an inaudible impedance matching load, which acts like a 50 kHz roll off. Cabletek/Radial recommends this filter when using the DI with keyboards, tone modules, drum machines and CD players because these devices can introduce ultra-high-frequency noise into the audio chain.

If using the DI with instruments such as acoustic guitars or basses, the switch should be set on "pick-up" so there is no interference with the upper harmonics. In addition to these switches, the JD4 is equipped with a phase reverse switch that reverses the polarity by changing the hot lead from 2-pin to 3-pin.

The JDI is equipped with two 1/4" jacks. In normal operation, the first jack acts as audio input and the second as a through connector, letting the source instrument connect to an amplifier. In the merge mode both 1/4" jacks act as audio inputs. There is also a balanced XLR output. Each channel of the JD4 has these same connectors and in addition, the 1/4" input connectors on each channel have been duplicated to enhance versatility.

The front panel jacks are the normalizing type that automatically reroute the I/O from rear panel to front panel when a connector is plugged in. The inputs on the rear panel of the JD4 are labeled both rightside up as well as upside down. This almost assures the user will find the proper jack the first time (regardless whether he or she is looking at the unit straight on or looking over the top of a rack and accessing the panel upside down).

Another feature of the JDI and JD4 is the use of recessed switches. This prevents switches from being broken off. The switches are also quite sturdy — accidental switching is virtually impossible.

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Product Points

Cabletek/Radial DI Boxes

Plus

- Durability
- Sound
- Three-year warranty

Minus

- No phase switch on the JDI

The Score

DI Boxes aren't the sexiest pieces of gear in the studio, but these durable, great-sounding boxes won't let you down.

equipment review

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In use

I'm currently recording new band tracks on some Roy Orbison cuts that were originally recorded in the early 1970s, and the Cabletek/Radial JDI and JD4 DI boxes have been indispensable. There is already a significant amount of noise on the vocal tracks due to the age of the material (more than 25 years old) and the bleed from the original tracking instruments. My goal has been to keep the noise floor to an absolute minimum. To do this, the vocal track has been transferred into a 24-bit Pro Tools rig so we can take full advantage of current noise removal technology. I have been recording the majority of the instrument tracks to the Sony 3348 digital multitrack with all keyboard tracks going through the Cabletek/Radial JD4. The results have been sonically stunning.

I have also had fantastic results recording programmed percussion, bass guitar and drum loops through the JDI and JD4. Because it is passive, I never had the groundloop problems often encountered with keyboard racks and drum machines. And since it is equipped with Jensen transformers, it sounds fantastic delivering a virtually linear response with no added noise.

Summary

The JDI is a winner from every angle. It's road worthy, it's feature-packed and it sounds great! The Cabletek/Radial design team is obviously more than a bunch of white coats who only make it out of the lab once a week to watch *Star Trek*. They are a team who understands the needs of recording and sound reinforcement engineers and knows how to design a product to meet these needs.

Russ Long, a Nashville-based producer/engineer, is a regular contributor to Pro Audio Review.