

Radial J48 DI box

A DI box is pretty much essential in any studio and on most stages. But with dozens on the market which do you buy? Andi Picker checks out the Radial J48

4.5

STAR RATING



SPEC CHECK

It's actually quite difficult to know how to introduce a review of a Direct Box, because really they're not all that interesting. Do a web search for "Direct Box" or "DI Box" and you'll find some slightly differing definitions, but for our purposes a Direct Box is a device that offers impedance matching, signal balancing, level matching and isolation, or to put it another way, it allows you to plug things (like guitars and basses) into

other things that weren't designed to work with them - and that really can be useful. In the Making Tracks column this month I'm looking at some recording approaches that give you massive flexibility when recording electric guitars and basses and if you haven't seen that column yet then it might be worthwhile to take a few minutes to flip the page and take a look now?

I've had my own Radial J48 for several years, and I can't remember the last time I didn't use it when making a "proper" recording of an amped guitar or bass. It's one of those pieces of kit that just works properly every-time it's needed. It's almost ridiculously over designed and over engineered, but that's what Radial does. The case is made

of 14 gauge steel, it weighs-in at a bit over 700g (it's heavy enough that plugged-in leads don't drag it around) and it's designed so that the sockets and 20,000 cycle rated switches are protected from knocks by the edges of the box; the outside of the case is hard-enamelled with useful text to remind you what does what, the base is covered with a rubber pad to provide mechanical and electrical isolation and grip when you put it down, and on the inside it's designed to provide rigid protection for the military grade circuit board. The unit runs off phantom power with internal switching that increases the internal voltages to provide massive headroom. It's quiet, low noise, high headroom, with boastable phase coherence and a very low distortion figures across the whole audio spectrum.

The J48 does have one slightly debated design decision. When you plug a "thing" that has an output (guitar, bass, microphone, keyboard, pre-amp etc.) into an input, you lose a part of your signal to earth or ground. Without going all engineering on the subject, how much you lose is related to the impedance (often written as Z) of the thing you plug into, such that higher Z is better. There's a "rule of thumb" that says that input impedance should be at least 10 times the output impedance of the circuit plugged into it. Now a very hot passive pickup has an impedance of around 10-15k Ohms,



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which suggests that a 100-150k Ohm input should be fine in most cases. Many DI box manufacturers have opted for values around 1M Ohm. I mention this because when discussion about DI boxes happens on the WWW someone often points-out that the J48 has a “too low” input impedance of around 220k Ohms. Now this value meets the x10 “rule” but it still concerns people, so a while back I emailed Radial about the reasons behind the decision and got a reply from Peter Janis (he’s the President and CEO and he took the trouble to reply!).

“The Radial J48’s input impedance is 220k-Ohms. The reason we chose this was that after many listening tests using the Dragster (Drag Control load correction) we found that it sounds more natural. Here’s the deal: Many DI makers use 1 meg-ohms because Fender tube amps have this input impedance. But what few realize (and we found out) is that a passive pickup reacts with the circuit of a tube amp and becomes part of the circuit. This is very much like comparing the sound of a fuzz or wah pedal when connected directly to the pickup versus when you use a buffer in between. The sound changes. In our view, a 1 Meg-Ohm impedance sounds too glassy. 220k-Ohms seems to work really well. For those that prefer a higher impedance, the Radial JDV reaches up to 4 meg-Ohms and is equipped with Drag Control.”

In my opinion - it just works!

Of course, none of this would matter if it didn’t do useful stuff, so let’s take a look at what it’s like to use. In a word, “simple”. Plug a guitar into the input, connect the thru socket to your amp and you won’t notice

that it’s there. Connect a mic lead to a pre-amp and you get an electrically balanced signal (that means it rejects interference like hum and buzz) to record independently. If the output is too hot use the 15dB pad (this halves the input impedance but again – I’ve never found this to be any kind of problem). If you want to save headroom by reducing low-end rumble, there’s a low-cut button at 80Hz (interestingly, the spec on the website quotes -3dB at 80Hz which would be very slight, the unit legend claims -6dB and a very quick and dirty test without measuring equipment suggest a bit more than this on my unit. Whatever - it does the job). Ground loop buzz? (caused by having different gear (say your guitar amp and mic pre) plugged into different earth/ground points on the electrical system) - press the Ground Lift button - solved. It also has a polarity reverse switch that’s useful for reducing feedback in live use or interfacing with older gear, and a brilliant merge feature that allows a pair of inputs to be collapsed to a balanced mono output (think stereo synth or processor outputs to a single input for example) without phase issues.

The question at this point has to be “but do I need one?”

If you just want to DI a guitar or bass then check your audio interface or mic pre. If it has a DI or Instrument socket then try that - some work very well, some work slightly less well. I made a simultaneous test recording of the J48 against an instrument input on a RME interface and the recorded differences were at about -50dB - not enough to warrant a purchase. I’ve tested other interfaces and the differences were much more noticeable. By the time you’ve put that recording



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through the Plutonium-Channel of your amp-sim of choice you may decide that you don’t need the refined quality of a high end solution.

If you want to play through an amp and DI at the same time then you’ll most likely need a Direct Box of some description (note that some pre-amps offer this - check before you buy). You can find boxes that are significantly cheaper (and significantly more expensive too) than the J48, and certainly there are other models that work very well and may do exactly what you need. For a simple box that just fixes connectivity problems without drama in every situation I’ve thrown it at and

sounds “right”, I’ll stick with my J48. If I felt that I needed two channels and more features (I don’t) then I’d take a look at the Radial JDV that Peter mentioned in his email.

Pros:

- Well designed
- Extremely well built
- Sounds very good

Cons:

- May offer higher quality than many users need

