



PRO DI DIRECT BOX

PRO D2 STEREO DIRECT BOX

USER GUIDE

Radial Engineering

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PRO DI AND PRO D2 USER GUIDE

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This manual covers the single channel PRO DI and the stereo two channel PRO D2. As both devices are virtually identical, this manual will discuss the PRO DI.

WELCOME

Congratulations on your purchase of the Radial PRO DI or PRO D2 direct box, one of the most versatile and useful pieces of equipment you will likely ever own! Why do we say this? Simple: a good passive direct box can often find its way into all kinds of applications and be a real problem-solver for both live PA systems and studio recording. For example, the PRO DI can be used to eliminate noise, split signals, convert unbalanced lines to balanced, and can be used backwards to send pre-recorded signals to a guitar amp for an effect called re-amping.

As with all Radial products, every attempt has been made to make the PRO DI 'plug & play' easy-to-use. However, it is still a good idea to read this manual thoroughly to ensure you take full advantage of all the features that are built-in, so that the results you get are the very best possible. Should you have any questions on your new PRO DI, please consult the Radial website FAQ section, as this is where we publish questions and answers from users after a product has been released. If you do not find the answer you are looking for, please feel free to send us an email at info@radialeng.com and we will do our very best to get back to you promptly.

Now plug in the ol' Martin, turn it up, way up... and enjoy!

INTRODUCTION

The Radial PRO DI is a passive direct box. This means that unlike active direct boxes that either require a battery or power of some sort to make them work, your PRO DI does not need any power at all. It is 'plug & play' easy-to-use.

A direct box is primarily used to convert a high impedance instrument signals to a low impedance balanced mic-level signal, which can then be processed like a microphone and driven through long cables without introducing noise. The PRO DI employs a high quality impedance-matching transformer to do the conversion.

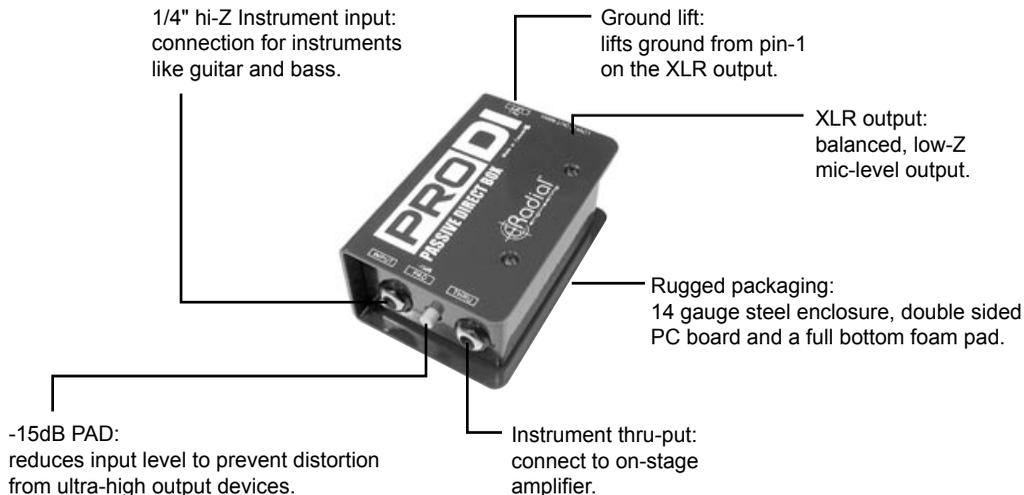
Typical applications for the PRO DI are connecting electronic instruments like guitar, bass, keyboard, and drum machines directly to a PA or recording system. Because the output of the PRO DI matches that of a typical microphone, the PRO DI is perfectly suited for use in live sound and recording studio systems where microphone signals are put through long cable systems to a mixing console and where all signals are balanced to keep noise down.

The cool thing about transformers is that they not only stop noise caused by ground loops, they can be connected to work in both directions! In other words, your PRO DI can convert a hi-Z unbalanced input to a low-Z balanced microphone signal (typical use) or it can do it in reverse and convert a low-Z balanced microphone signal to a hi-Z unbalanced output. Connecting the PRO DI in reverse, you could for instance, take the balanced output from a mixer and send it to a DVD recorder for proper impedance and level matching, or take a pre-recorded track from a digital workstation and send it to a guitar effect pedal for re-amping effects. A good passive DI can be used to interface all kinds of audio equipment and can solve many impedance and noise problems.



FEATURE SET

The Radial PRO DI is a very simple yet effective device. It features a 1/4" input connector that connects to the source or instrument, a 1/4" thru-put connector that connects the instrument to the amplifier and finally, a low impedance balanced XLR output connector that provides a direct and transformer-isolated signal to the mixer. A -15dB input PAD switch and output ground lift switch are also available to process the signal.



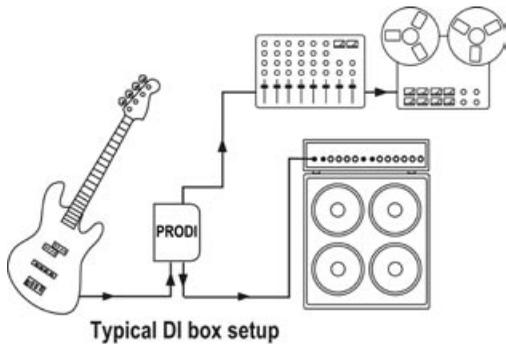
MAKING CONNECTIONS

Using the Radial PRO DI is easy. Before connecting, start by making sure all volume levels are set to zero and the audio system is turned off. This will avoid any loud pops in your sound system that could cause system damage. The PRO DI does not require any power and it will ignore the phantom power from your mixer, if it is turned on.

Begin by connecting the instrument or source device to the INPUT connector on the PRO DI. The THRU connector would be used to connect the signal from the instrument to the musician's stage amplifier. For line-level sources, the THRU connector may be used to feed a second mixer, recorder, or monitor speaker.

Finally, connect the PRO DI's LOW-Z OUT to the microphone input of a mixing console or other suitable device. Often the PRO DI's output will connect through a microphone snake system to a mixing console.

Once your cables are connected, you can turn your system on and turn the volume up. Start at a low volume to make sure everything is working properly. If you encounter any buzz or hum, try lifting the ground switch on the PRO DI. If you hear any distortion, check the input at your mixer first and then, if your input controls appear normal, try depressing the input PAD switch on the PRO DI. This will reduce the input level by -15dB and eliminate distortion caused by ultra-high output sources. After depressing the PAD switch, the mixer input controls may have to be readjusted.



RE-AMPING WITH YOU RADIAL PRO DI

The term re-amping comes from taking a pre-recorded guitar track and sending it back through a guitar amplifier to re-amplify it, and then re-record it again. This trick has been used since the 1950s with artists as diverse as Les Paul, the Beatles and Steely Dan.

It's simple to do: plug your electric guitar into the PRO DI and send the thru-put to your guitar amplifier. Connect the balanced output on the PRO DI directly to your recording system and record a clean guitar track this way. Put a mic in front of your guitar amp as usual and record it to another track at the same time. You will now have both the amplified sound and the direct clean sound recorded on separate tracks. Now take the clean recorded track and send it back through the PRO DI in reverse. To do this, you will have to get a female to female XLR turn-around adaptor, as you will be connecting the output of your mixer to the XLR OUTPUT of the PRO DI. Keep the mixers output level low to avoid saturating the PRO DI's transformer which would cause distortion. Now, simply connect the INPUT (remember, we're connecting this in reverse) on your PRO DI to your guitar amplifier and/or effect pedals inputs. Using your PRO DI in reverse to re-amplify your sound can be great fun and adds tons of creative options to a recording. This now lets you listen to various distorted sounds and create new tones while you are sitting in front of your studio monitors.

FAQ

Why is the PRO DI's output not as loud as the output from a keyboard or active preamp?

The PRO DI is a passive direct box and is designed to output a microphone level. This allows the PRO DI to be used alongside other microphones in a snake system and connect to the microphone input on a mixing console.

Will phantom power hurt my PRO DI or devices connected to it?

No. Phantom power will simply be ignored by the PRO DI as well as blocked from reaching any device connected to it.

Do I really need a DI? Can I not simply connect my instruments directly into the mixer?

Of course you can! Instruments can connect directly to a mixer using a hi-Z unbalanced "guitar" cable up to 20 feet long. The advantage of using a high quality direct box is lower noise and proper impedance matching. This will result in better sound, especially when connecting to professional audio equipment that accepts balanced signals and/or when the instrument signal must travel through cables longer than 20 feet to a mixing console.

I heard active direct boxes can be better than passive. Is this true?

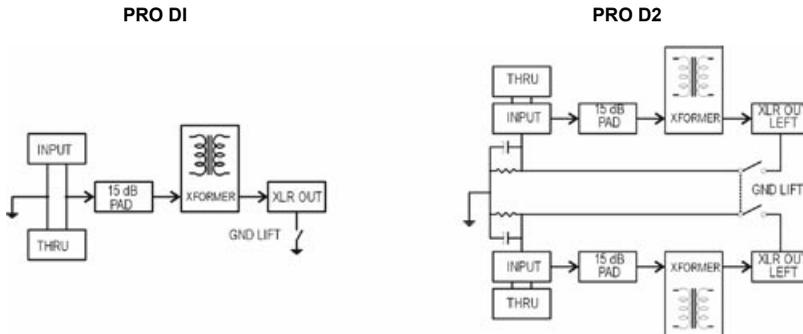
Both active DIs and passive DIs have their place in professional audio, just like condenser and dynamic mics do. Active DIs

can have more 'reach' and enhance the sound of some instruments. Passive DIs tend to sound more 'down to earth' and less colored than active DIs. The real advantage of passive DIs over active ones is that they eliminate hum & buzz caused by ground loops by using a transformer to isolate the input signal from the output.

Can I use a piezo pickup with the PRO DI?

If your piezo equipped instrument has it's own pre-amp and battery you can use the PRO DI with excellent results. If your piezo equipped instrument does not have a pre-amp then you really need to have a higher input impedance to get the most out of a piezo without a pre-amp. The Radial JDV has a 4 meg-ohm input impedance that is perfectly suited for these types of pickups.

BLOCK DIAGRAM AND SPECIFICATIONS



PRO DI and PRO D2 Specifications	
Frequency response:	20Hz to 20kHz +/- 2.5dB
Total harmonic distortion:	0.01 % from 20Hz to 20kHz
Input impedance:	140K ohms (at 1K input impedance)
Balanced outputs:	600 ohms, -60dB mic level, pin-2 hot
PAD:	-15dB
Gain:	- 22dB

RADIAL ENGINEERING - 3 YEAR LIMITED WARRANTY

RADIAL ENGINEERING (a division of J.P Cabletek Electronics Ltd.) “Radial” warrants this product to be free from defects in material and workmanship to the original owner and will remedy any such defects free of charge according to the terms of this warranty.

Radial will repair or replace (at its option) any defective component(s) of this product (excluding batteries, finish and wear and tear on components under normal use) for a period of three (3) years from the original date of purchase. In the event that a particular product is no longer available, Radial reserves the right to replace the product with a similar product of equal or greater value.

To make a request or claim under this limited warranty, the product must be returned prepaid in the original shipping container (or equivalent) to Radial or to an authorized Radial repair center and you must assume the risk of loss or damage. A copy of the original invoice showing date of purchase and the dealer name must accompany any request for work to be performed under this limited warranty. This limited warranty shall not apply if the product has been damaged due to abuse, misuse, misapplication, accident or as a result of service or modification by any other than an authorized Radial repair center.

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