

ProD2™
Passive Stereo
Direct Box



ProDI™
Passive
Direct Box

User Guide

Radial Engineering Ltd.
1845 Kingsway Ave., Port Coquitlam BC, V3C 0H3, Canada
Tel: 604-942-1001 • Fax: 604-942-1010 • email: info@radialeng.com

ProDI and ProD2 User Guide

TABLE OF CONTENTS	PAGE
Introduction.....	1
Features	2
Making connections.....	3
Frequently asked questions.....	4
Block diagram and specifications	5
Warranty	Back cover

Note: This manual covers the single channel ProDI and the stereo two channel ProD2. As both devices are virtually identical, this manual will discuss the ProDI.

WELCOME

Congratulations on your purchase of the Radial ProDI or ProD2 direct box, two 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 ProDI 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 ProDI '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 ProDI, 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, feel free to send us an email at info@radialeng.com and we will do our very best to get back to you promptly.

INTRODUCTION

The Radial ProDI 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 ProDI 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 signal to a low impedance balanced mic-level signal, which can then be processed like a microphone and driven through long cables to the PA without introducing noise. The ProDI employs a high quality, custom designed impedance-matching transformer to do the conversion.

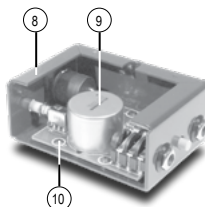
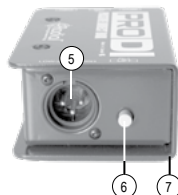
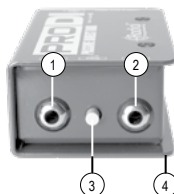
Typical applications for the ProDI are connecting electronic instruments like guitar, bass, keyboard, and drum machines directly to a PA or recording system. Because the output of the ProDI matches that of a typical microphone, the ProDI is perfectly suited for use in live sound and recording studio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



FEATURE SET

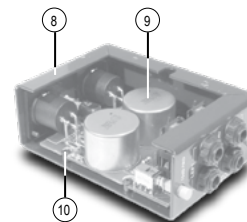
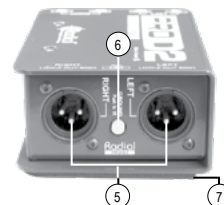
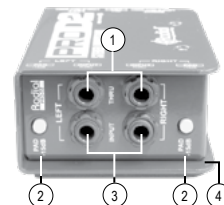
ProDI

- 1/4" INPUT:** Instrument input used to connect to the direct box.
- 1/4" THRU-PUT:** Parallel output used to connect the instrument signal to an amplifier.
- 15dB PAD:** Reduces the input signal to prevent distortion.
- BOOKEND DESIGN:** The bookend cover provides protection to switches and connectors.
- XLR OUT:** balanced, low impedance mic-level output. Wired with AES standard (pin-2 hot).
- GROUND LIFT:** Disconnects pin-1 at the XLR output to reduce ground loops.
- FULL BOTTOM FOAM PAD:** Isolates the DI from the amp chassis and keeps it from sliding around on busy stages.
- STEEL ENCLOSURE:** Ultra rigid I-beam design eliminates stress that could torque the PC board and cause solder joint failure.
- RADIAL TRANSFORMER:** Custom designed transformer offers outstanding audio performance.
- DOUBLE-SIDED PCB:** Military-grade PCB with plated through-holes is bolted to welded steel standoffs.



ProD2

- LEFT & RIGHT 1/4" THRU-PUTS:** Parallel outputs used to connect the instrument signals to an amplifier.
- LEFT & RIGHT -15dB PAD:** Reduces the input signal to prevent distortion.
- LEFT & RIGHT 1/4" INPUT:** Instrument inputs used to connect to the direct box.
- BOOKEND DESIGN:** The bookend cover provides protection to switches and connectors.
- LEFT & RIGHT XLR OUT:** balanced, low impedance mic-level output. Wired with AES standard (pin-2 hot).
- GROUND LIFT:** Disconnects pin-1 at the XLR output to reduce ground loops.
- FULL BOTTOM FOAM PAD:** Isolates the DI from the amp chassis and keeps it from sliding around on busy stages.
- STEEL ENCLOSURE:** Ultra rigid I-beam design eliminates stress that could torque the PC board and cause solder joint failure.
- RADIAL TRANSFORMER:** Custom designed transformer offers outstanding audio performance.
- DOUBLE-SIDED PCB:** Military-grade PCB with plated through-holes is bolted to welded steel standoffs.



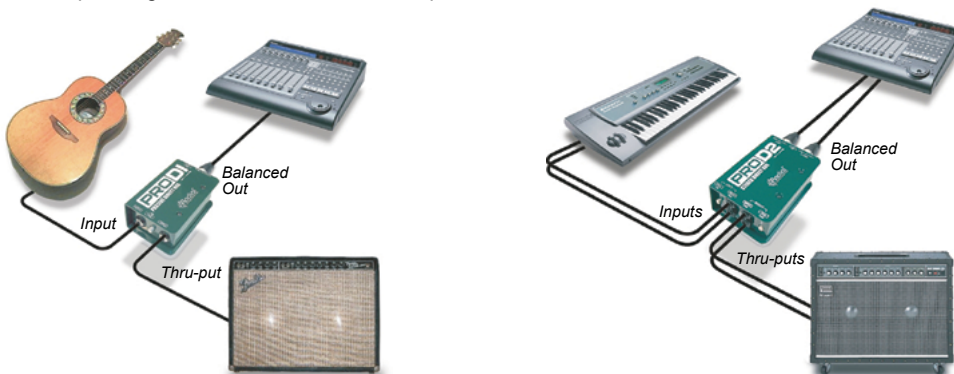
MAKING CONNECTIONS

Using the Radial ProDI 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 ProDI 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 ProDI. 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 active monitor speaker.

Finally, connect the ProDI's LOW-Z OUT to the microphone input of a mixing console or other suitable device. Often the ProDI'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 ProDI. 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 ProDI. This will reduce the input sensitivity 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.



FAQ

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

The ProDI is a passive direct box and is designed to produce a microphone level signal. This allows the ProDI 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 ProDI or devices connected to it?

No. Phantom power will simply be ignored by the ProDI 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?

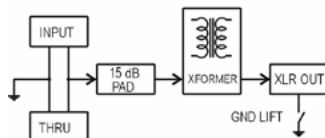
Both active DIs and passive DIs have their place in professional audio, just like condenser and dynamic mics do. Active DIs can have more 'reach' and enhance the sound of some instruments. Passive DIs tend to handle more level than active DIs. The real advantage of passive DIs over active ones is that 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 ProDI?

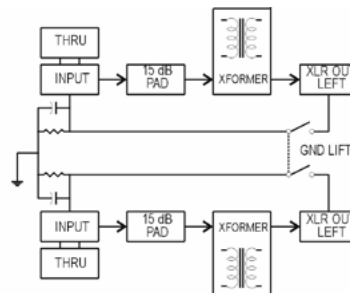
If your piezo equipped instrument has it's own pre-amp and battery (active piezo pickup) you can use the ProDI with excellent results. If your piezo equipped instrument does not have a pre-amp (passive piezo pickup) then you really need to have a higher input impedance to get the best signal output. The Radial JDV and PZ-Pre include a piezo feature with a very high input impedance that is perfectly suited for passive piezo pickups.

BLOCK DIAGRAM AND SPECIFICATIONS

ProDI



ProD2



ProDI and ProD2 Specifications

Frequency response:	20Hz to 20kHz +/- 2.5dB
Total harmonic distortion:	0.01 % from 20Hz to 20kHz
Input impedance:	140K ohms (with 1kHz input)
Balanced outputs:	150 ohms, -60dB mic level, pin-2 hot
PAD:	-15dB

RADIAL ENGINEERING 3 YEAR TRANSFERABLE WARRANTY

RADIAL ENGINEERING LTD. ("Radial") warrants this product to be free from defects in material and workmanship 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 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.

THERE ARE NO EXPRESSED WARRANTIES OTHER THAN THOSE ON THE FACE HEREOF AND DESCRIBED ABOVE. NO WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL EXTEND BEYOND THE RESPECTIVE WARRANTY PERIOD DESCRIBED ABOVE OF THREE YEARS. RADIAL SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSS ARISING FROM THE USE OF THIS PRODUCT. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH MAY VARY DEPENDING ON WHERE YOU LIVE AND WHERE THE PRODUCT WAS PURCHASED.



Radial Engineering Ltd.
1845 Kingsway Ave., Port Coquitlam BC, V3C 0H3, Canada
Tel: 604-942-1001 • Fax: 604-942-1010
email: info@radialeng.com

www.radialeng.com