



# JDX

## Amplifier Direct Box

# User Guide



**CAUTION:** Please read safety disclosure statement on the inside cover before connecting your Radial JDX.

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## **SAFETY DISCLOSURE STATEMENT**



**CAUTION:**  
Please read before  
connecting your Radial JDX



### **THE JDX IS NOT A LOAD BOX**

It is mandatory that your amplifier be connected to a loudspeaker or load box at all times. The JDX does not provide a significant resistive load for an amplifier to safely operate. Damage may occur to your amp if the JDX is used without a proper loudspeaker load.

### **ALWAYS TURN YOUR AMPLIFIER OFF BEFORE CONNECTING OR DISCONNECTING THE JDX.**

It is your responsibility to confirm the JDX is connected properly before operating your amplifier. If you are unsure about connecting or operating the JDX consult a qualified technician or see your dealer. Damage caused by improper operation is not covered under the warranty. See the back cover for warranty details.

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# Radial JDX Amplifier Direct Box

## Users Guide

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Congratulations on your purchase of the Radial JDX guitar amp direct box, a unique tool for recording and performing with amplified electric guitar. The JDX is an active speaker-level DI that taps the natural tone of your amplifier and interfaces it with professional recording and PA systems.

The Radial JDX is easy to use, however it differs significantly from standard direct boxes. Like any tool, the best way to get the most out of your JDX is by understanding the design, functions and safety features. We recommend you take a few minutes to read this manual before operating your JDX.

Should you have any questions regarding the JDX or it's functions check our FAQ at [www.radialeng.com](http://www.radialeng.com). If you would like to share your experience with Radial products we invite you to contact us at [info@radialeng.com](mailto:info@radialeng.com).

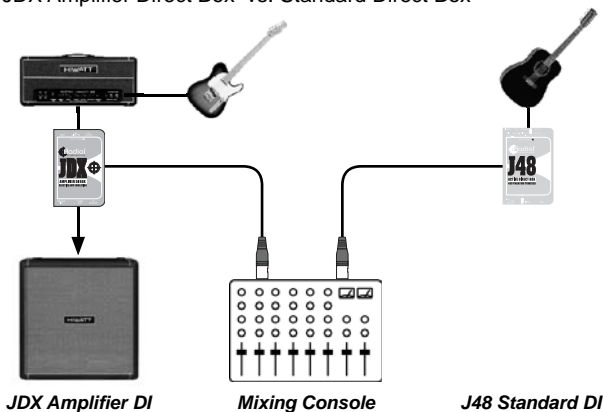
The JDX, one small step for mankind, one huge leap for tone fanatics!

## DESIGN CONCEPT

The JDX differs from a standard DI like the Radial J48. A standard DI taps the output of the guitar before it is connected to an amplifier. The JDX taps the output of your amplifier yielding a completely different sound.

The JDX is placed between the amplifier and loudspeaker. A proprietary reactive circuit follows the constantly changing interaction between amp and speaker to capture the dynamic response of your amp. Then an active multi-stage filter processes the signal to emulate the frequency response of a loudspeaker and finally, the JDX uses a Class-A buffering amplifier to output a signal suitable for pro-recording and and PA systems.

### JDX Amplifier Direct Box vs. Standard Direct Box



Bass and acoustic guitars often use a standard DI to capture the clean sound of the instrument. This works because these instruments almost always use an unprocessed sound and the PA system merely amplifies the levels of the direct signal.

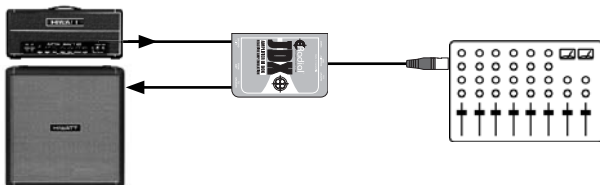
Electric guitars generally don't use standard DIs because the amplifier and loudspeaker play an important part in a player's sound. Typically a microphone is used to capture the amplified guitar sound. This raises several other variables such as bleed, placement and acoustics that come along with using microphones.

The Radial JDX offers an easy solution by eliminating the microphone and delivering the sound of a player's amp directly to the recording or PA console. By removing the variables of a microphone the consistency of the sound from night to night is improved. This is a boon to in-ear monitor users. When listening through in-ear monitors subtle differences in mic placement and room acoustics can translate into huge changes in tone. The JDX provides great sound while eliminating bleed from other instruments, like drums, from leaking into the guitar mix.

## TYPICAL APPLICATIONS

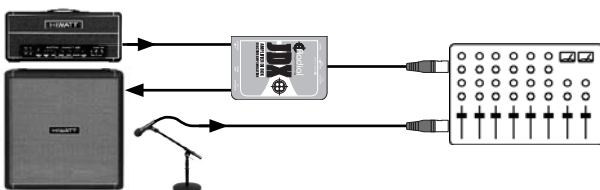
### Replace a Microphone with JDX.

The most basic use of the JDX is to eliminate the need to use an open microphone to capture the sound from the guitarist's amp. The diagram shows the typical connection of the JDX.



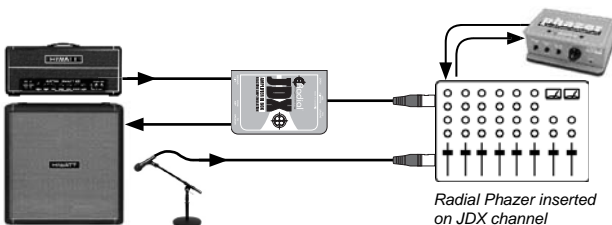
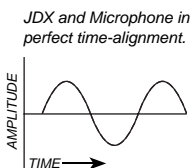
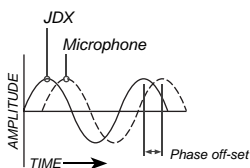
### Using the JDX with a Microphone

Mixing the signal from the JDX with a microphone is a great way to create new sounds. The JDX can also be mixed with a clean direct box signal for a cool effect. Try recording the JDX and microphone to separate tracks that are panned hard left and right.



### Using the JDX with the Radial Phazer

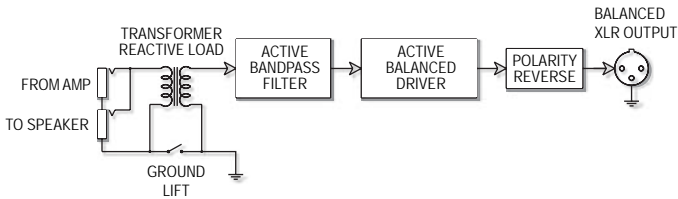
When the signal from the JDX and a microphone combine there will inevitably be a small time delay between the signals. The Radial Phazer can be used to time-align the JDX signal with the microphone for perfect phase response. The Radial Phazer saves you editing time because it works in real-time while recording.



Radial Phazer inserted on JDX channel

## BLOCK DIAGRAM

To help you understand how the JDJ works take a few moments to trace the signal flow through the block diagram.



### CAUTION, THE JDJ IS NOT A LOAD BOX

Please read the safety disclosure statement on the inside cover of this manual before connecting or operating the JDJ.

### Parallel Amplifier Input and Speaker Thru-put

The FROM AMP input and TO SPEAKER thru-put jacks are paralleled together and provides the means to patch the JDJ in-between the amp output and loudspeaker.

### Transformer

The transformer is the front end of the JDJ reactive circuit and is used as a reactive load that responds into the various electrical phenomena that dictate how a particular amplifier and loudspeaker sound together.

This is what makes the JDJ unique when compared to the “load box” approach. A load box simply burns off the excess energy into heat and completely ignores the amp and loudspeaker interaction. By capturing the reactive effect between the amp and loudspeaker the JDJ comes closer to the original tone than any other interface system.

The transformer also pulls double duty by electrically isolating the signal passing through it, effectively blocking noise caused by ground loops. This is important because the JDJ connects a guitar amplifier to a recording or PA system that may be powered from a different AC main circuit. Without the transformer a ground loop may form that can cause buzz and hum in sound systems.

### **Ground Lift**

A ground lift switch is provided to further reduce noise caused by ground loops.

### **Active Bandpass Filter**

The analog filter section is the back-end of the reactive circuit and its job is to emulate the typical response curve of a speaker cabinet. The Class-A active filter in the JDX produces superior sound over passive filter circuits.

### **Active Balanced Driver**

The output driver in the JDX converts the output to a balanced 600 ohm mic-level signal for driving long cables without signal loss or noise. This JDX output can be patched into typical microphone snakes and be processed along with other microphone signals. The active balanced driver uses a discrete Class-A design for excellent headroom and low distortion.

### **180° Polarity Reverse**

The polarity of the JDX output can be inverted with the 180° switch. Depressing the switch will reverse the signal on pin-2 and pin-3 at the XLR output. The polarity reverse may be used to interface older "pin-3 hot" equipment that does not follow the AES standard for XLR pin-out, or to correct a polarity reversal upstream in the signal chain.

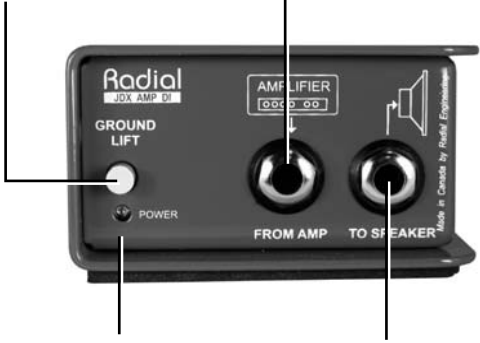
### **Balanced XLR Output**

The JDX outputs a balanced mic-level signal. The male XLR connector pin-out is wired to the AES (Audio Engineering Society) standard with pin-1 ground, pin-2 hot and pin-3 cold.

**FEATURES AND FUNCTIONS**

**GROUND LIFT** switch eliminates hum and buzz caused by ground loops.

**FROM AMP** connection for amplifier output, max 300 watts.



**POWER LED** lights to indicate the JDX is connected to its power supply.

**TO SPEAKER** connects your amp to the speaker through the JDX. Connection to a loudspeaker is mandatory. Please read the safety disclosure statement before connecting the JDX.

**XLR OUTPUT** mic-level, 600 Ohms balanced XLR output connects to your mixing console.

**BOOKEND DESIGN** creates a protective zone for the jacks switches.



**POLARITY RREVERSE** for pin-2 and pin-3 at the XLR output. Used to correct signal polarity problems.

**PSU JACK** connection for the included 15 volt DC power supply.

**FULL BOTTOM PAD** Neoprene keeps it from sliding around and provides isolation from electrified amplifier frames and handles.

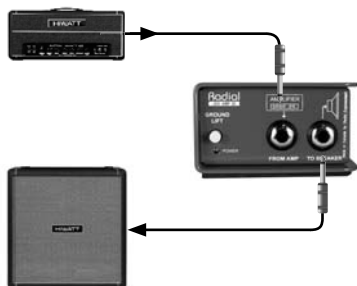


## CONNECTING THE JDX

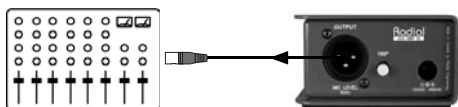
The JDX will typically be located on or near the guitar amplifier to facilitate short speaker cables. We recommend speaker cables be 6 feet or less in length with a minimum of 16AWG two conductor cable. Longer cables should use heavier gauges to maintain the best power transfer. The balanced XLR connection from the JDX to the mixing console may be made through several hundred feet of balanced cable without signal loss.

***Before you begin, ensure your amplifier and PA or recording system are turned off. Lower all the volume controls to minimum to avoid loud transients.***

1. Connect your amplifier's speaker output to the FROM AMP  $\frac{1}{4}$ " jack on the JDX.
2. Connect the SPEAKER  $\frac{1}{4}$ " jack on the JDX to your speaker cabinet.



3. Connect the XLR output to a mic preamp input on your mixing console using a standard XLR microphone cable.



4. Connect the JDX power supply and check the LED power indicator to confirm power is present.
5. Turn on your amp and bring up the volume to a low level for testing. Always test at low volume before cranking it up.
6. If all is well, set the amp volume to an appropriate level. Keep in mind that the level at the balanced XLR output will follow the amp so it's best to set the level of the amp before setting levels at the mixing console.

## FREQUENTLY ASKED QUESTIONS

**Q: Can I mount the JDX on the back or inside my amp/speaker cabinet?**

A: Yes, the Radial J-Clamp allows you securely mount the JDX to almost anything.

**Q: Does the JDX provide a load for the amp to drive.**

A: No. The JDX is not a load box. For safe operation a loudspeaker must be connected to the SPEAKER OUT jack.

**Q: Can I use the JDX with a load box or power attenuator?**

A: Yes. The load box takes the place of a loudspeaker and provides a load for the amp to drive.

**Q: Can I leave the JDX connected to my amp when I'm not using it?**

A: Yes, as long as a loudspeaker is connected the amps output will flow thru the JDX to your speaker even when the JDX power supply is disconnected.

**Q: Can I use the JDX with a bass amp?**

A: Yes. Keep in mind the JDX has a max power input of 300 watts. Bass amps that exceed this rating can damage the JDX. Try combining the signals from the JDX and a standard direct box to record bass guitar for a new sound.

**Q: My combo amp doesn't have amp and speaker jacks on the back. Can I still use the JDX.**

A: Yes. Solder a 1/4" plug onto your amps speaker cable to connect to the FROM AMPLIFIER jack. Then make a short jumper cable to connect the TO SPEAKER jack to the speaker terminals. Or contact a qualified amp tech to make these changes.

**Q: Can I also use the JDX like a standard direct box.**

A: No. The JDX is an amp DI exclusively.

**Q: What does the speaker emulation sound like?**

A: The active analog speaker filter circuit is a compromise between a closed-back 4x12 and an open-back 2x12 speaker cabinet.

**Q: Will the JDX sound exactly like my amp?**

A: Nothing is 100% transparent. We feel the JDX comes closer than anything else and sounds terrific.

<b>JDX Specifications</b>	
Circuit type:	Class-A 100% discreet
Speaker emulation	Reactive load sensing with proprietary band pass filtering
Total harmonic distortion	0.005 % @ 1KHz
Amp input	1/4", 300 watts max
Speaker thru-put	1/4", paralleled to amp input
Balanced outputs	XLR 600 $\Omega$ , -60dB mic-level
XLR pin configuration	AES standard: pin 1 ground pin 2 hot (+) pin 3 cold (-)
Power supply (included)	15VDC, 400mA current draw
Size (W x D x H)	3.25"x 5"x1.75" (83x126x45mm)
Weight	1.5 lbs. (.7 kg)
Warranty	3 Years, transferable

## **RADIAL ENGINEERING 3 YEAR LIMITED 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.

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