



J33

Phono Preamp DI

User Guide

Radial Engineering
1638 Kebet Way, Port Coquitlam BC V3C 5W9
Tel: 604-942-1001 Fax: 604-942-1010
email: info@radialeng.com

Radial Engineering is a division of C-TEC (JP CableTek Electronics Ltd.)

www.radialeng.com

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Congratulations on your purchase of the Radial J33 combination turntable preamp and direct box. This handy device has been developed to interface a conventional turntable with magnetic cartridge to both professional balanced audio systems and consumer unbalanced hi-fi systems.

As with all Radial products, every attempt has been made to make the J33 'plug & play' easy-to-use. However, please read this manual thoroughly to ensure the best possible results.

Should you have any questions on your new J33, please consult the Radial website FAQ section as this is where we publish answers from users after a product has been released. If you do not find the answer you are looking for on-line, 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 dust off that old Perry Como Christmas record, pour yourself some eggnog and enjoy!

www.radialeng.com

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INTRODUCTION

Since the advent of the compact disc, the use of long-playing records has become so sparse that it has become difficult to find a hi-fi receiver that is equipped with a phono input. With literally millions of albums floating around the world, a need has emerged to capture these recordings and transfer them to today's digital formats.

The Radial J33 provides a solution with a simple device that is 'plug & play' easy-to-use and built to Radial's professional standards for sound quality and durability. Equipped with an RIAA preamp and choice of -10dB consumer line-level and pro 600Ω mic-level outputs, the J33 is right at home in the studio, on the stage and in the DJ booth.

For the enterprising studio, this opens the door to a new business opportunity: a phono to CD transfer service that offers families a way to enjoy their favorite LP's in their cars and on their new surround sound systems. The Radial J33 also boasts other advantages: for the broadcast station and museum, old record collections can now be easily archived by transferring phono recordings to digital media. With the plethora of digital 'noise-eliminating' software, less than ideal recordings can now be updated to approach today's signal-to-noise expectations.

For the recording studio, the emergence of 'scratching' in hip-hop, rap and pop music opens the door to better recordings and more creativity by allowing a turntable to connect through high-end processing, opening up opportunities for re-recording and greater artistic freedom.

FEATURE SET

The Radial J33 is a combination RIAA phono preamp and active DI that allows you to connect a conventional turntable with magnetic cartridge to a recording system, hi-fi or PA system.

The J33 features a pair of stereo inputs for the turntable. A ground lug is provided to properly ground the turntable to avoid system noise. This signal then feeds the preamp that boosts the phono signal while introducing the RIAA equalization curve.

Next to the turntable inputs are a series of unbalanced -10dB consumer line-level outputs. These include a stereo set of RCA connectors that can connect to the auxiliary or CD inputs on a typical hi-fi receiver; a 1/8" (3.5mm) stereo mini-jack that can connect to an MP3 player or computer sound card and a 1/4" TRS connector that can be split using an insert cable to a pair of 1/4" line inputs on a PA or DJ mixer.

The J33 is also equipped with a low-frequency rumble filter. This gently rolls off the bass to reduce the low frequency rumble and resonant feedback that can occur when spinning records in high volume environments such as on stage or in nightclubs.

To connect to professional balanced systems, the Radial J33 is equipped with a pair of male XLR connectors. The active balanced drivers convert the signal to a low impedance (600Ω), microphone level, stereo signal. The J33's balanced XLR outputs can drive turntable signals well over 100 meters (328 feet) without appreciable loss or noise. This makes the J33 ideal for driving turntable signals through a snake system on stage and through the patchbays and complex wiring systems that abound in the professional studio.

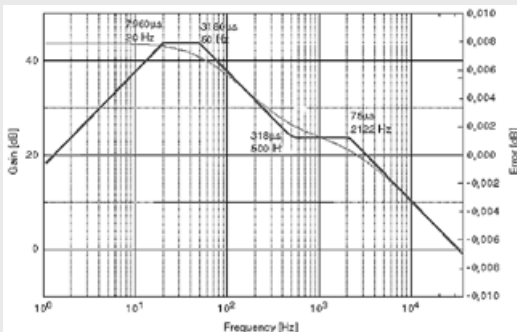
The Radial J33 may be powered with 48V phantom or with the included 15VDC power supply. The J33 will automatically select the power source and the two LED on the front panel will illuminate, indicating power is present.



RIAA PREAMP

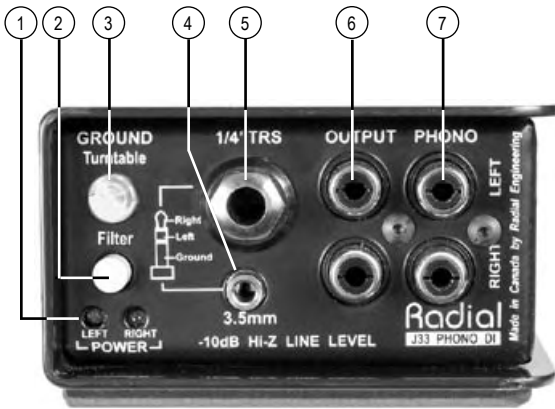
An RIAA phono preamp is a device that boosts the signal from a turntable and applies a pre-defined equalization curve. The RIAA equalization curve is applied as pre-emphasis EQ during the cutting of the metal master, and as a de-emphasis EQ on playback. In other words, a record is cut with the low frequencies reduced and the high frequencies boosted (pre-emphasis), and on playback the opposite occurs (de-emphasis). The RIAA preamp in the J33 provides this required de-emphasis EQ.

The result is a flat frequency response, but with noise such as hiss and clicks arising from the surface of the record itself reduced (or "attenuated"). The RIAA equalization curve has operated as a global industry standard for the recording and playback of vinyl records since 1954.



This is the RIAA EQ curve that the J33 applies to the turntable signal. The exact opposite curve was encoded into the signal when the vinyl LP was pressed.

INPUT PANEL FEATURES



1. LED power indicator

For left and right channels. Illuminates when the 15VDC power supply is connected or when 48V phantom power is applied from a mixing console.

2. Rumble filter

Applies a high pass filter (bass roll-off) when pushed in.

3. Ground lug

Attaches to the turntable ground wire.

4. 3.5mm stereo output jacks

-10dB (consumer level) stereo output for direct connection to computer sound cards, laptops or any device with a 3.5mm input. This connector is also known as 1/8" TRS

5. 1/4" stereo output jack

-10dB (consumer level) stereo output for direct connection to a local mixer, recorder or any device with a 1/4" TRS input.

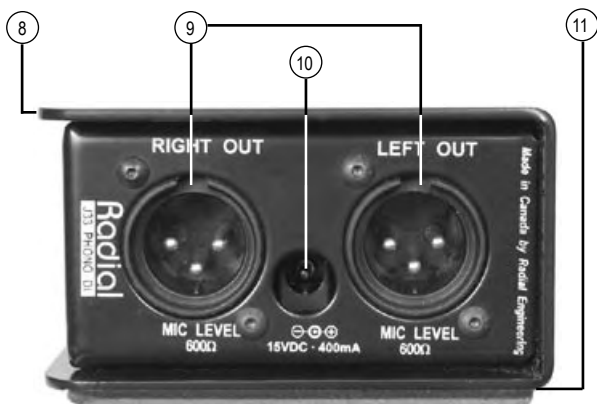
6. RCA stereo output jacks

-10dB (consumer level) stereo outputs for direct connection to a hi-fi receiver AUX or CD input or any device with an RCA input.

7. RCA phono (turntable) input jacks

RIAA equalized stereo input for turntable signals. Use in conjunction with the ground lug.

OUTPUT PANEL FEATURES



8. Bookend design

14 gauge steel outer shell creates protective zone around connectors and switches and wraps around a welded case with I-beam construction for maximum durability. Finished in tough baked enamel.

9. Left and right XLR outputs

Balanced low impedance (600Ω) microphone level outputs. Connects to mic input on mixing console.

10. 15VDC power supply connection

The 15VDC power supply is connected here for powering the J33. There is no power switch and leaving the J33 on will not harm it. This jack is not used if the J33 is powered with phantom power from a mixing console. When switching from 48V phantom power to the external DC supply, or back, please wait 15 seconds to allow the RIAA amplifier to charge and stabilize.

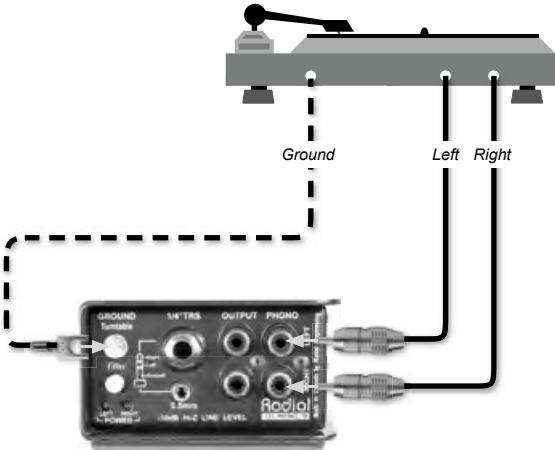
11. Full-bottom no-slip pad

This provides electrical and mechanical isolation plus plenty of "stay-put" friction to keep the J33 in one place.

MAKING CONNECTIONS

Using the Radial J33 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.

Begin by connecting the turntable outputs to the J33 using the RCA connectors and securing the ground lead from the turntable to the ground lug on the J33.



Detail of turntable connections showing the left and right signal outputs and the turntable's spade ground lead.

The J33 may be powered in two ways. The first is with 48V phantom power from a mixing console. The second is with the J33's external 15VDC supply. To use 48V phantom power the J33 must be connected using its XLR connectors to a mixing console equipped with phantom power. If your mixer is not equipped with phantom power or if you are connecting to unbalanced systems through the J33's RCA, 1/8" and 1/4" connectors you will need to use the J33's external 15VDC power supply. Performance is identical with either power supply and the J33 will automatically select the power source depending on how you have it set up. As soon as you connect the J33's external 15VDC power supply or turn on the mixers phantom power, the J33's front panel LED indicators will illuminate. When switching from 48V phantom power to the external DC supply, or back, please wait 15 seconds to allow the RIAA amplifier to charge and stabilize.

Make the connections from the J33 to whichever piece of gear you would like. The unbalanced -10dB outputs are commonly known as consumer line-level outputs. These will drive inputs found on hi-fi equipment and the unbalanced line-level inputs found on mixing consoles. The balanced XLR outputs on the J33's rear panel are mic-level so that they will match up with

other direct boxes and microphones, thus enabling the J33 to be used along with microphones in snake systems, mic splitters and through console mic preamps.

You can use any or all the output connectors at once, enabling you to, for instance, connect your turntable to the J33, the -10dB RCA line-level outs to a DJ mixer and the balanced XLR outs to a PA system. Depending on how the equipment is connected to the AC mains, there can be a potential for ground loop hum when using both the balanced and unbalanced outputs at the same time. If a ground loop hum develops, a possible solution is to lift the ground at the PA mixer and use the J33's 15VDC external power supply.

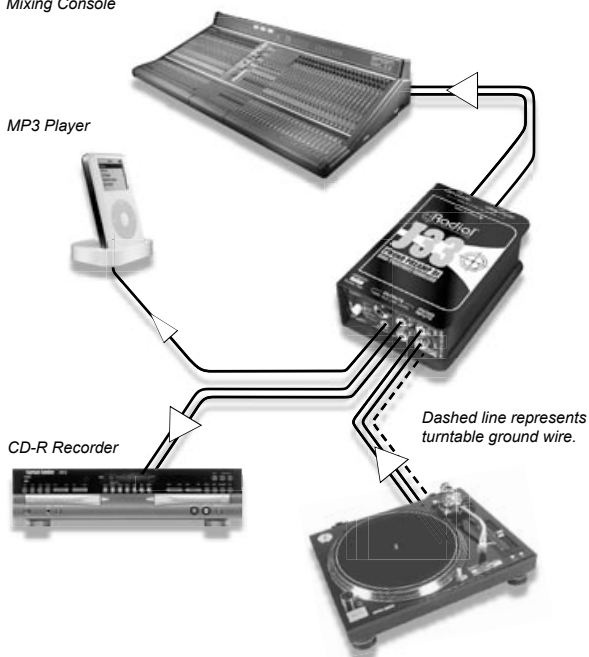
Once your connections are made, turn on the sound system. Begin at low volume to make sure the sound system is working properly, get your favorite album and listen. The sound should be clear. If you hear any hum or buzz, check the ground wire, as this is the usual culprit. It should be firmly held by the J33's ground lug. If you are driving your system at high volume levels and begin to hear low frequency resonance, try depressing the rumble filter. This will usually tame low frequency PA system feedback.

You are now ready to spin away! Have fun!

Mixing Console

MP3 Player

CD-R Recorder



FAQ

What is an RIAA pre-amp and why do I need one?

When vinyl albums are produced, a preset EQ curve is introduced. This EQ curve is the RIAA phono response curve and has been a standard since the introduction of the long play record or LP. The RIAA response curve was developed to get better performance out of the medium. When the record is played back the signal needs to be restored by applying the exact opposite EQ curve as the one introduced during production. This is what the RIAA preamp section of the Radial J33 is doing. Without an RIAA preamp, LPs would not sound as they were intended to.

Can I use an active phono cartridge with the J33?

No. The J33 is designed to use magnetic cartridges which make up 99% of all turntable cartridges ever sold.

What should I do if I depress the rumble filter and still have feedback?

Try using an isolation pad such as the Primacoustic IsoPlane (www.primacoustic.com). This will reduce the vibration going into the turntable and help eliminate low frequency resonant feedback.

Can I connect other devices such as keyboards or computer sound cards to the J33's input?

No. The J33's input is pre-equalized with the RIAA curve. This curve is designed for LP records and would make any other source sound bad, plus these line-level devices would overload the J33's sensitive input circuit and cause distortion.

Why is there no ground lift on the J33?

Because the ground lift would disconnect the pin-1 on the XLR, which in turn would shut off the phantom power.

Can I rackmount the J33?

Yes. The Radial J-Rak will allow as many as 8 direct boxes to be rack-mounted in two RUs. Go to the Radial website for more details on the J-Rak. (www.radialeng.com)

What should I do if the LEDs do not light up?

Check that the external power supply is connected or, if connecting to a mixer through the J33's XLR outputs, make sure the 48V phantom power has been turned on at the mixer.

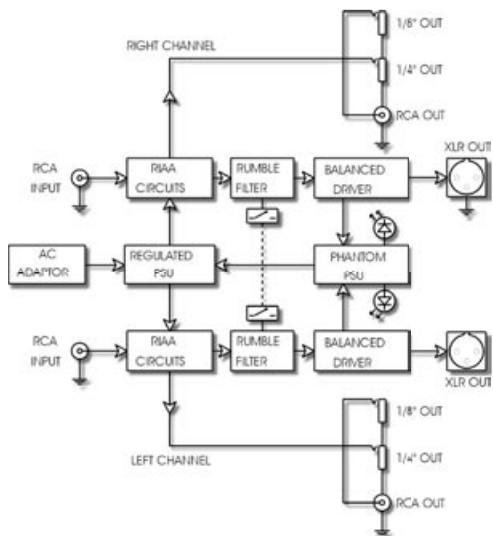
Can I record an album directly to my computer sound card using the J33?

Yes. Most sound cards are equipped with a 3.5mm input connector. Connect the line-level output of the J33 to the computer and you should be set to go. Sound card input levels vary, so watch for distortion as the output of the J33 is quite hot. Your computer sound card software should allow you to pad down the input should this be a mic-level input.

How will the J33 sound with my hi-fi system?

Great! The J33 is a low noise preamplifier and will out-perform the typical RIAA preamp built into consumer hi-fi equipment.

J33 BLOCK DIAGRAM



| J33 Specifications | |
|---------------------------|--------------------------------|
| Frequency response | 20Hz ~ 20KHz \pm 3dB |
| Total harmonic distortion | 0.005 % @ 1KHz |
| RIAA curve | +19.5dB @ 20Hz |
| | -19.65dB @ 20kHz |
| | Reference: 0dB @ 1kHz |
| RIAA deviation | +/- 0.5dB maximum |
| Max. phono input level | 50mV @ 1KHz |
| High pass filter | 200Hz cut off, -3dB at 100Hz |
| Unbalanced outputs | 10kOhm, -10dB line-level |
| Balanced outputs | 600 Ω , -60dB mic-level |
| XLR pin configuration | AES standard: pin 1 ground |
| | pin 2 hot (+) |
| | pin 3 cold (-) |
| Power (auto-switching) | 15VDC or 48V phantom |
| Size (W x D x H) | 3.25"x 5"x1.75" (83x126x45mm) |
| Weight | 1.5 lbs. (.7 kg) |
| Warranty | 3 Years |

**RADIAL ENGINEERING
3 YEAR LIMITED WARRANTY**

RADIAL ENGINEERING (a division of J.P Cabletek Electronics Ltd.) 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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1638 Kebet Way, Port Coquitlam BC V3C 5W9
tel: 604-942-1001 fax: 604-942-1010 email: info@radialeng.com

www.radialeng.com

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