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Radial® engineering

True to the Music

Twinline™
Effects Loop Router

User Guide

Radial Engineering Ltd.
1588 Kebet Way, Port Coquitlam
British Columbia, Canada, V3C 5M5
Tel: 604-942-1001 • Fax: 604-942-1010
Email: info@radialeng.com

Radial® Twinline™ User Guide

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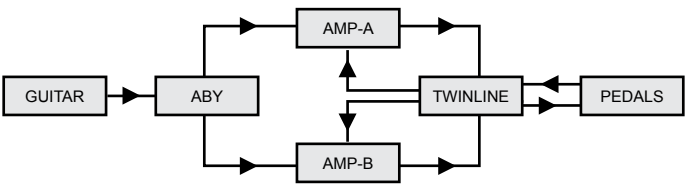
Thank you for purchasing the Radial Twinline™. The Twinline is an innovative device that enables you to route your effects to two amps when using their rear-panel effect loops.

As the Twinline requires a significant number of cables and is equipped with remote controllability, it is well worth taking the time to read through this manual before you get started. This will not only ensure proper connections are made, but it will also help you optimize the signal path for best tone and least distortion. If after you have read this manual you still find yourself asking about a feature or function, please visit the Twinline FAQ page located on our website. This is where we post answers to questions and where we often post product updates. If you still have questions that are left unanswered, feel free to send a note to info@radialeng.com and we will do our best to reply in short order.

Now get ready to roll up your sleeves and start patching!

INTRODUCTION

The Twinline is basically a switcher that lets you toggle your pedalboard and effects between two amplifiers using their rear panel effects loop. In other words, you can have one set of pedals and then route it to either of your two amps so that you do not need to duplicate your pedalboard setup.



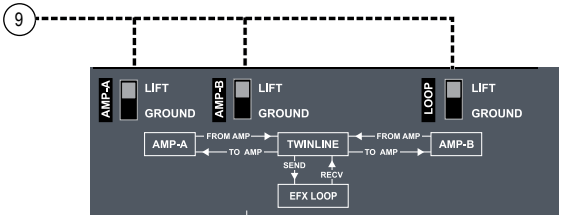
Before you start to reach for your cables, you should consider your amp and effects setup and prepare your connections based on how you intend to use them. Furthermore, it is good practice to turn off all of your audio equipment and amplifiers before making connections. This will prevent plug-in or power-on transients that could damage more sensitive components. Once you are ready, and have made the connections, you can plug in the Twinline's 15VDC power supply. This turns on the Twinline as there is no power switch. A handy cable lock may be used to secure the cable in place.

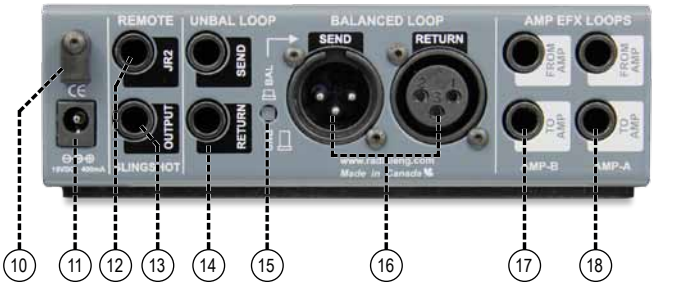
FRONT PANEL FEATURES

1. **AMP-A INPUT:** Sets the level from the AMP-A effects loop to your effect pedals.
2. **AMP-A RETURN:** Sets level from the pedals to the AMP-A effects return input.
3. **PHASE INVERT:** Reverses the effects loop polarity coming back from the AMP-A's effect loop return.
4. **A/B SELECT:** Selects active amplifier's effects loop.
5. **AMP-B INPUT:** Sets the level from the AMP-B effects loop to your effect pedals.
6. **AMP-B RETURN:** Sets level from the pedals to the AMP-B effects return input.
7. **PHASE INVERT:** Reverses the effects loop polarity coming back from the AMP-B's effect loop return.
8. **EFX ON :** Used to bypass the Twinline effects loop to audition the dry signal path.

TOP PANEL FEATURES

9. **GROUND LIFT:** Lifts the effects loop ground to help eliminate hum and buzz caused by ground loops.





REAR PANEL FEATURES

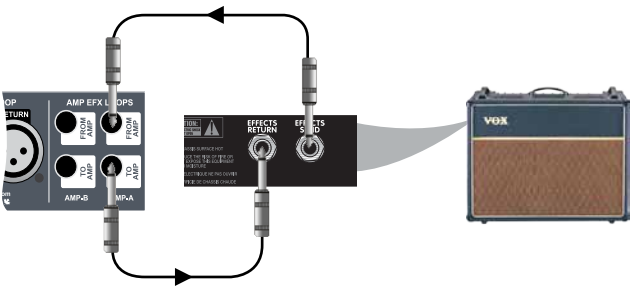
10. **CABLE CLAMP:** Locking cable clamp lets you secure the power cable to prevent accidental disconnection.
11. **POWER:** 15VDC power connection for external power supply.
12. **REMOTE JR2:** TRS ¼" input connection for optional Radial JR2 remote footswitch.
13. **SLINGSHOT OUTPUT:** remote ¼" TS contact closure output.
14. **UNBAL LOOP:** Standard ¼" unbalanced guitar level effects loop with send and receive to pedalboard.
15. **UNB / BAL:** Push in to select the balanced send & receive XLR connectors.
16. **BALANCED LOOP:** Professional +4dB balanced send & receive XLRs for studio effects processor.
17. **AMP-B EFX LOOP:** Connects from and back to the AMP-B effects loop.
18. **AMP-A EFX LOOP:** Connects from and back to the AMP-A effects loop.

CONNECTING THE TWO LOOPS

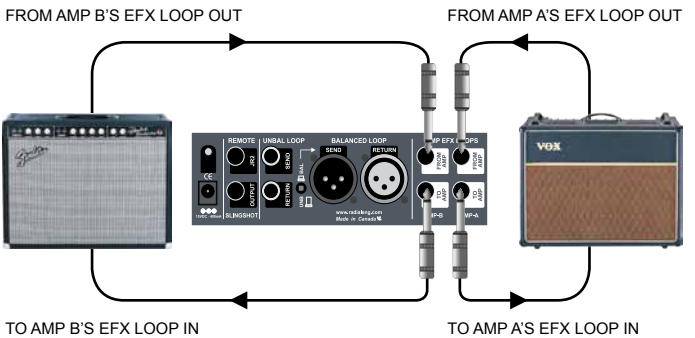
When making connections, ensure you are using high quality coaxial unbalanced guitar cables with ¼" connectors. Good quality cables help reduce noise while retaining signal integrity. Try to keep the cables as short as possible. You will need at least six (6) guitar cables for the basic hookup.

Start by connecting the two amp's effects loop to the Twinline:

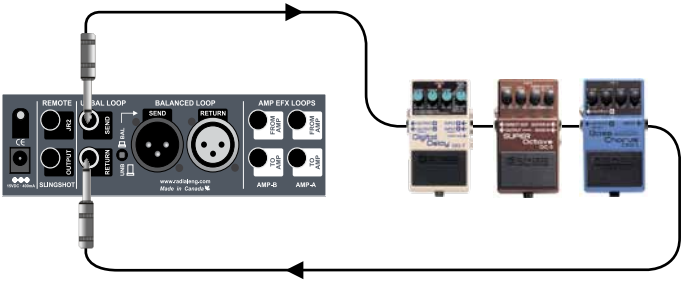
1. Connect the effects loop SEND from your first amplifier to the Twinline FROM AMP A input.
2. Connect the TO AMP A from the Twinline to your first amplifier's effects loop RECEIVE jack.



3. Connect the effects loop SEND from your second amplifier to the Twinline FROM AMP B input.
4. Connect the TO AMP A from the Twinline to your second amplifier's effects loop RECEIVE jack.

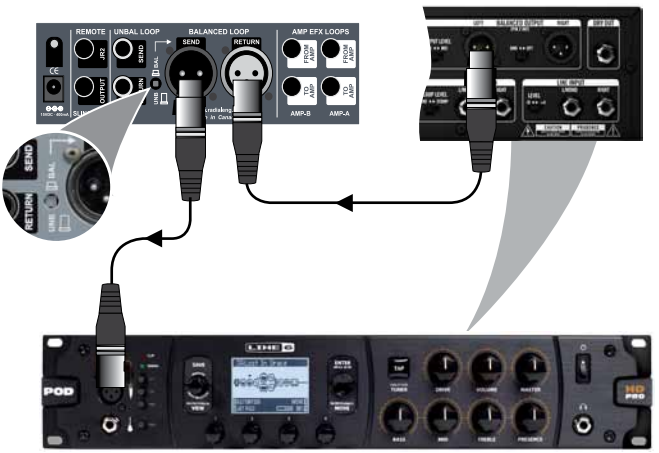


Next, connect your pedalboard (guitar effects) or studio processors to and from the Twinline:



1. USING UNBALANCED GUITAR PEDALS:

a. Make sure the rear panel effects select switch is set to the UNB (unbalanced) OUT position. *This switch is recessed to prevent accidental switching.*
b. Connect from the Twinline SEND to the input of your first pedal.
c. Connect from your last pedal to the Twinline RECV (receive).

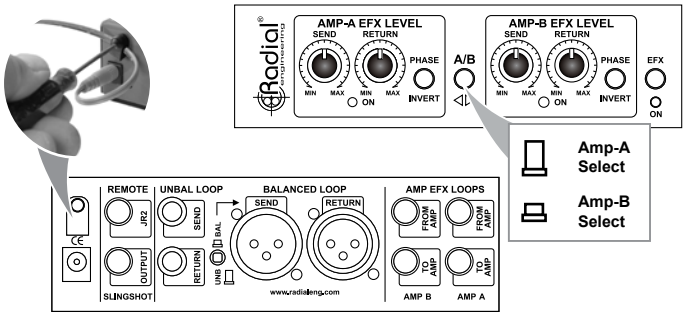


2. USING A BALANCED STUDIO PROCESSOR:

a. You will need two balanced XLR cables.
b. Set the rear panel effects select switch to BAL (balanced) IN position.
c. Connect from the Twinline XLR SEND to the input of your processor.
d. Connect from your processor to the Twinline RECV (receive) XLR input.

GETTING STARTED

You are now ready to power up. Make sure the volume levels on your amps are turned down before turning them on. Plug in the Twinline's power supply, turn on your amps. Set the send and receive loop controls on the Twinline to 12 o'clock. If your amp has variable level controls, they should be set to the manufacturer's recommended setting to start.



Select loop-A using the A-B switch on the Twinline front panel. The LED indicator will illuminate to let you know which channel is active. Bypass your effects by setting the FX ON switch to the OFF (OUT) position – this LED will go off. Slowly bring up the volume on your first amp and test. Always test at low volumes to ensure things are working before turning up. This can help eliminate turn-on or connection transients from cables that may not be seated correctly.

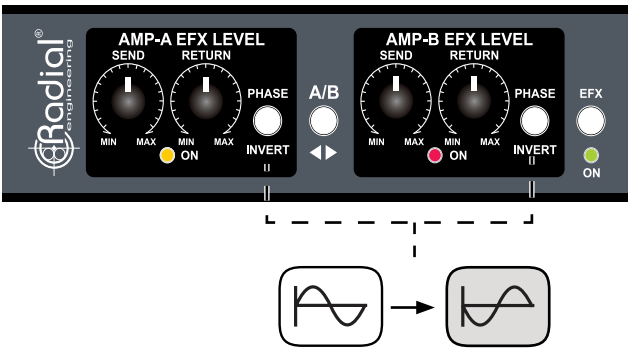
Once you have confirmed the signal is passing, activate the Twinline by depressing the FX ON switch. The LED will illuminate. You can now play using your effects. It is a good idea to use a clean effect such as a delay or chorus to set the levels. If you hear distortion, reduce the SEND level on the Twinline and then adjust the RECEIVE level for gain make-up. If the sound seems thin… increase the SEND level to suit. You cannot harm pedals by overloading them, they will simply distort.

It is important to note that when combining various products together such as amps, switchers and pedals, it takes a bit of fiddling to get the levels to work properly. Be patient and try different settings. Take notes on your setups by using the handy setup page at the end of this manual. This reference will surely come in handy when changing or trying various setups.

You are now ready to test the second amps effects loop. To do this, select Amp-B using the front panel AB switch, bypass the effects for testing (FX switch out) and then if all is good, reactivate the effects (FX switch -in). Set your levels to suit this amp and you are now ready to rock!

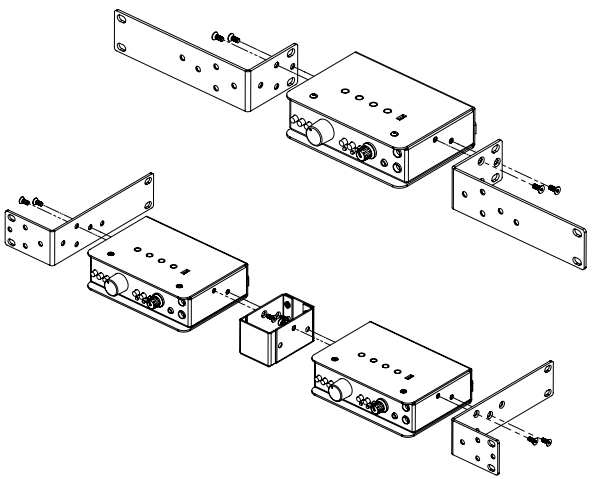
THE POLARITY REVERSE

Both of the Twinline effects loops are equipped with a polarity 'invert' switch. Some amplifiers will invert the phase as it goes through the signal path. Correct this by depressing the PHASE INVERT switch. When out of phase, one amp will sound more distant then the other.



RACK MOUNTING THE TWINLINE

The Twinline may be rack mounted using the optional SA rackmount kit. This allows either one or two of the Radial Stand-Alone (SA series) modules to be used side by side and only requires a single 19" rack space for mounting.



REMOTE CONTROLLING THE TWINLINE

There are two ways to toggle the effects loop between the amps. The easiest is to use the front panel AB select switch. This works great in the studio when you are not under the pressure of doing quick switches during a live show. However, if you consider all of these cables going back and forth to the Twinline and your amps, when playing live, it is best to keep the Twinline near your amp where you can hide the cable mess and keep the cables as short as possible in order to reduce susceptibility to noise.

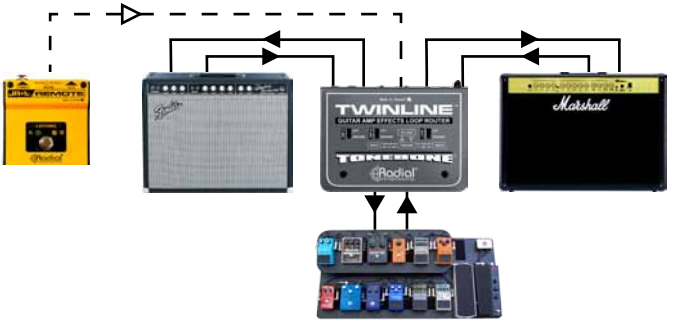
The Twinline is able to be remotely controlled in a number of ways. This includes using a standard latching footswitch, a Radial-equipped Slingshot pedal, using the optional JR2 or SW2 remote footswitches or the contact closure from a MIDI controller.

USING THE OPTIONAL JR2 REMOTE

The Radial JR2 is a dual footswitch remote that can toggle the AB loops and bypass the effects altogether. It receives current from the Twinline to power its LEDs thus providing visual status at your feet. Connection from the JR2 is accomplished using a standard ¼" TRS cable.

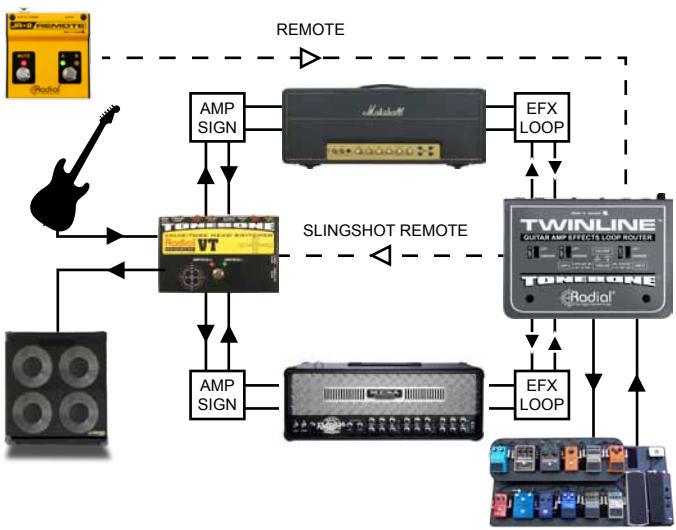
USING A LATCHING FOOTSWITCH

Connect a **latching** footswitch with ¼" connector to the JR2 jack on the Twinline. Once depressed, this will toggle the effects loops from Amp-1 to Amp-2. The LED indicators on the Twinline front panel will let you know which amp effects loop is active.



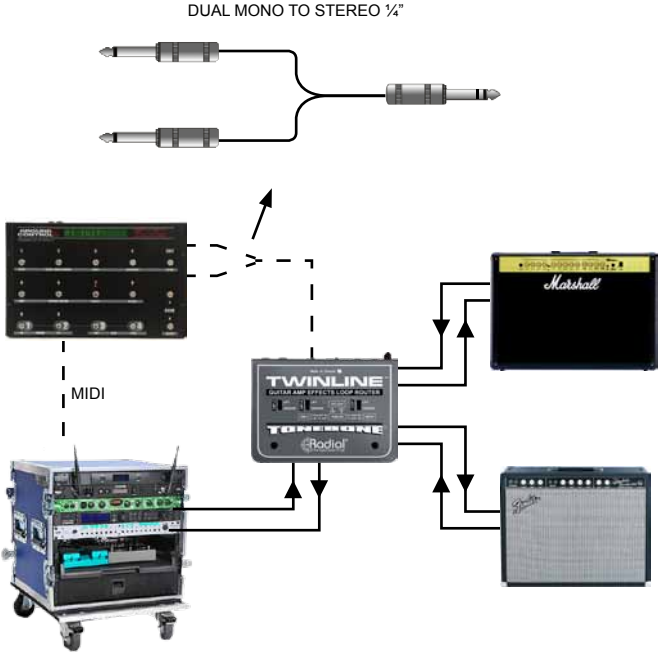
USING THE SLINGSHOT OUT FROM THE TWINLINE

To take things even further, the Slingshot out can be connected to a Radial device like the Headbone™ which can then switch heads and toggle the effects loops at the same time. For many this is the ultimate setup. Simply connect the Slingshot output to the Headbone using a ¼" cable.



USING A MIDI SWITCHER

A great way to toggle the Twinline is to use a MIDI footswitch controller. Simply take the latching contact closure output from your MIDI controller and connect it to the Twinline remote input. You can also use second contact closure to bypass the effects loops by creating the following dual mono to stereo connection.



SETUP REFERENCE PAGE

Date: _____

Notes: _____

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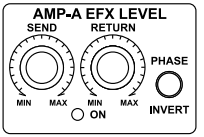
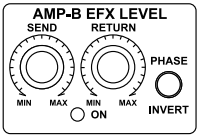
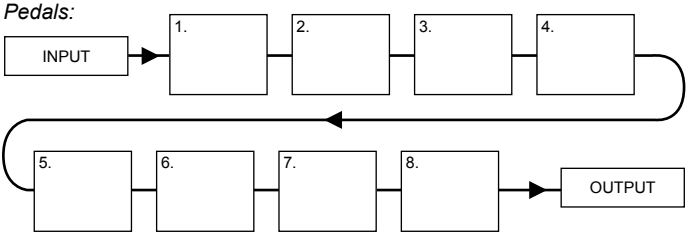
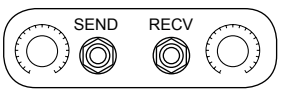




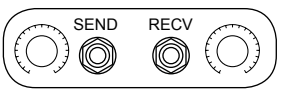
Pedals:



*Amp A:*_____



*Amp B:*_____



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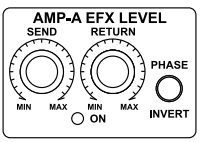
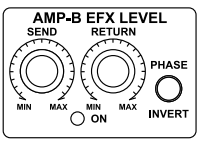
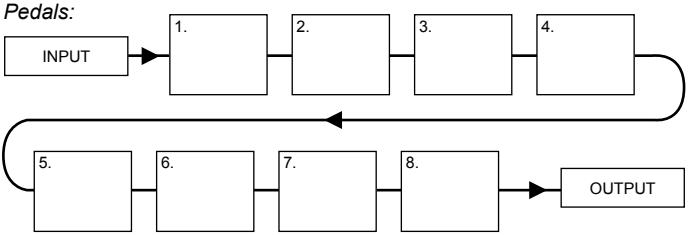
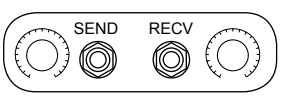




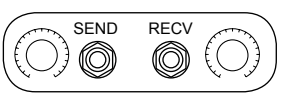
Pedals:



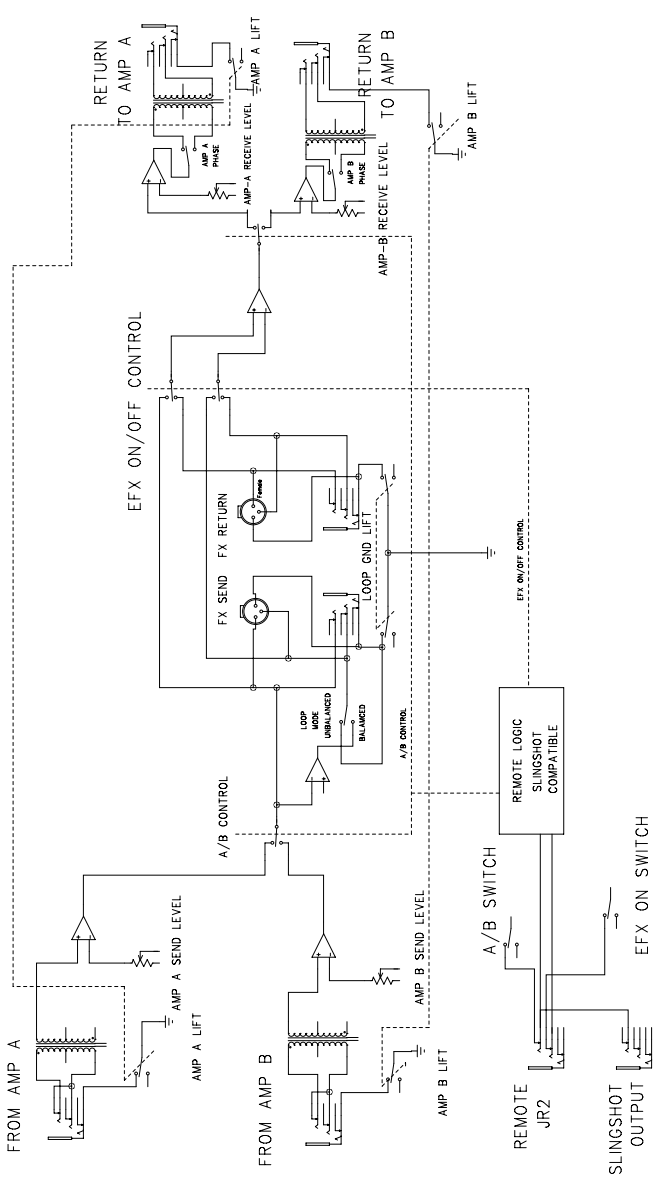
*Amp A:*_____



*Amp B:*_____



BLOCK DIAGRAM*



** Subject to change without notice.*

SPECIFICATIONS*

Radial Twinline

Audio circuit type:	Class-A FET with transformer isolation
Dynamic range:	105dB
Gain - from amp jack to EFX send:	Variable from -2.7dB ~ +3.6dB
Equivalent input noise:	-103dB
Noise floor:	-92dBu
Intermodulation distortion:	0.01%
Common mode rejection ratio:	91dB @ 55Hz
Maximum input - from amp jack:	+25dBu
Maximum input - FX input:	+8dBu
Total harmonic distortion:	0.005% @ 1kHz
Input impedance - from amp:	10KΩ
Output impedance - to amp:	2200Ω
Input impedance - FX return:	1MΩ
Output impedance - FX send:	1KΩ
Unity gain control position:	About 10:00 o'clock on send & return EFX

Features

Controls:	Send & return gain for amps A & B
Switches:	180° polarity reverse on each effect loop
Input/output connections:	Balanced ¼" TRS or unbalanced ¼"
Ground lift:	Both inputs and on the FX loop
Remote controls:	Slingshot contact closure in/out

General

Construction:	14 gauge steel chassis & outer shell
Finish:	Durable powder coat
Size: (W x H x D)	4.5" x 2" x 6" (114 x 57 x 147mm)
Weight:	2.8lbs (1.3Kg)
Power:	15V 400mA Power Adapter
Conditions:	For use in dry locations only between 5°C and 40°C
Warranty:	Radial 3-year, transferable

** Subject to change without notice.*

THREE YEAR TRANSFERABLE 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. In the unlikely event that a defect is uncovered, please call 604-942-1001 or email service@radialeng.com to obtain a RA number (Return Authorization number) before the 3 year warranty period expires. The product must be returned prepaid in the original shipping container (or equivalent) to Radial or to an authorized Radial repair centre 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 and transferable warranty. This 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.

To meet the requirements of California Proposition 65, it is our responsibility to inform you of the following:
WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
Please take proper care when handling and consult local government regulations before discarding.

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Radial Engineering Ltd.
1588 Kebet Way, Port Coquitlam, British Columbia, V3C 5M5
Tel: 604-942-1001 • Fax: 604-942-1010 • Email: info@radialeng.com

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