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EXTC™ 500
ReaMP®
500 Series Module

User Guide

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Radial® EXTC™ 500 Reamp® User Guide

Congratulations and thank you for purchasing the Radial EXTC 500 Reamp® module. The EXTC is a unique 500 series interface designed to allow you to introduce guitar pedals and effects into the recording world with relative ease while keeping the signal quiet. With the EXTC in your rig you are now set to add wah to a Hammond, tube distortion to a vocal track or an envelope filter to the snare drum. The EXTC is all about creativity and making sure your recording stands above the rest.

This manual describes installing and operating your EXTC in the Radial Workhorse or other 500 series module power racks. To take full advantage of the unique features that have been incorporated into the EXTC, please read through this guide before using it. This user guide will give you a broader sense of the module's capabilities. If you have questions that are not covered in this manual, please visit the FAQ section on our website. This is where we post answers to questions from users. If you cannot find the answer to your question please feel free to send an email to info@radialeng.com and we will do our very best to respond as quickly as possible.

The Radial EXTC 500 module opens creative options to your recording world.

⚠️ **WARNING NOTICE TO USER!**

Although preventative safety measures have been designed into Radial 500 series products **we strictly advise against hot-swapping modules** or plugging and unplugging them when the Workhorse or other 500 series rack is powered on. Hot swapping can cause connection sparks at the card-edge connector that could send damaging transients to other equipment. This also greatly reduces the life span of the contacts. Damage due to hot swapping is not covered under warranty. There are no user serviceable parts inside.
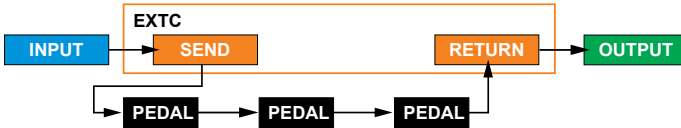
FEATURE SET

1. BLEND - Lets you adjust the wet-dry mix between the original unprocessed signal and the EXTC's effects loop.

2. 180º POLARITY REVERSE - Lets you adjust the polarity of the wet signal path and bring it into phase with the dry signal when they are being mixed together.

3. OMNI INSERT (with Workhorse) - Turns on the Workhorse TRS Omniport insert jack. This is used to add a second unbalanced effects insert path, wired in series after the front-panel loop.

4. SEND LEVEL - Used to adjust the output level going to the pedals and optimize signal-to-noise for best performance.

5. RECEIVE LEVEL - Used to set the effects loop return path level and further optimize signal-to-noise.

6. ¼" SEND and RECV - Separate send and receive jacks used to connect guitar pedals to the EXTC. Front panel mounted to make connections easy for use on the desktop and transformer isolated to eliminate hum and buzz caused by ground loops.

7. OMNIPORT (with Workhorse) - TRS insert jack lets you connect effects to a second unbalanced effects insert path, wired in series after the front-panel insert loop.
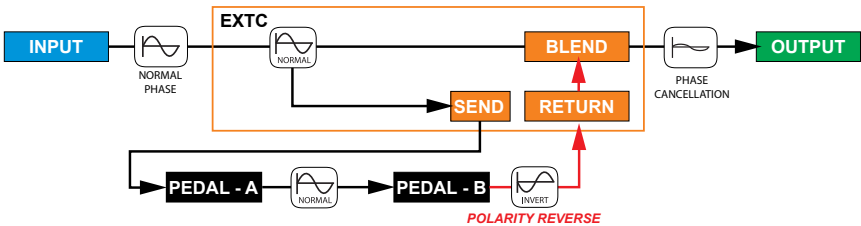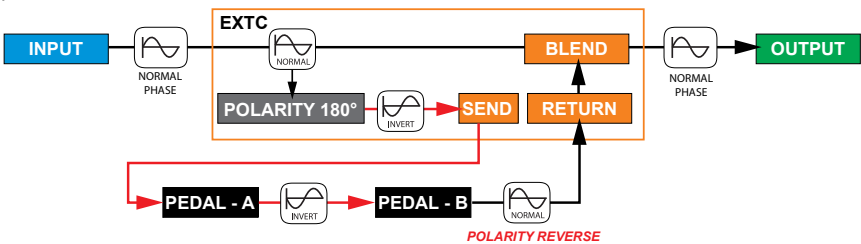
OVERVIEW

The Radial EXTC is a professional audio interface that takes a balanced line level signal and converts it to a guitar-level effects loop and then re-converts it back to a balanced line level for processing. In other words, you send in a balanced signal from your recorder, adjust the send level that drives the pedals. Set the return level from the pedals as it comes back and send the resulting sound to your recording system.

Although simple in principle, the key to the EXTC's performance is how quietly it does the task. This is achieved by employing full sized discrete electronic components, class-A circuitry and transformer isolation to help eliminate the hum and buzz that is common with pedals and guitars. The other cool 'trick' inside the EXTC is the blend control. This mixes the original dry signal with the newly introduced effects created by the pedals. Something to think about here is how some effect pedals will reverse the polarity of the signal passing through them. When you mix a dry signal with a wet signal and one is polarity reversed, you will of course end up with cancellation. The diagram below illustrates a setup where one pedal "B" is inverting the polarity creating cancellation where two out-of-phase signals come together.

The 180º polarity reverse switch plays an important role by ensuring both the dry and wet signals are in phase. The next diagram shows how the 180° switch inverts the signal before it gets to the offending pedal. Pedal "B" gets tricked into re-inverting the signal back to normal phase.

Once you get the EXTC hooked up, you will find it to be loads of fun! All of a sudden, you will be going back into the attic looking for that box of forgotten pedals, dusting them off and plugging them in. Some will sound fantastic, others will sound bad in a good way. Who knows, only those brave enough to enter blindly into these cold waters may live to tell the tale.

GETTING STARTED

Before making any connections, start by turning off your audio system and turning all volume levels down. This helps protect equipment from turn-on transients that could damage loudspeakers and other sensitive equipment. We recommend using a power bar with an on-off switch as this makes it easy to turn on and off the 500 series rack, monitors and so on, using a single switch. Carefully plug the EXTC into your 500 series rack to avoid stress on the card-edge connector. Screw the module in to ensure it does not accidentally get dislodged.

Connections between the EXTC and your pedals are made on the front panel while connections to the recording system are done on the rear panel. Most 500 series racks are equipped with XLR connectors. When you plug the EXTC into your 500 series rack, it will automatically route the input and output to the module. With the Workhorse, this is augmented with ¼" TRS connectors, D-Subs and a signal to feed the Workhorse mixer. It also activates the Omniport which in this instance (with EXTC) turns the Omniport into a second effects loop.

> **Start by setting up the X-amp panel controls as follows:**
> 1. Set the blend control to the wet position (fully-clockwise).
> 2. Make sure the 180º is off (switch outward) so that everything is in phase.
> 3. Set the Omniport insert switch to off (switch outward).
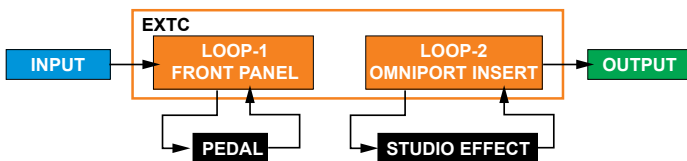> 4. Set the send and receive level controls at mid-way (12 o'clock).

Connect the output from your recorder to the XLR input on the rear panel. To connect your pedals, simply plug the ¼" send to your pedal chain and the output of the pedal chain back to the EXTC receive input. We suggest you start with one pedal first before using a complete chain. This will make it easier to trouble shoot when setting up the EXTC in your system.

Turn on the effects and play the desired track. You should be able to monitor the return path in your recording system and hear the effect. Separate send & receive controls make it easy to adjust the levels to suit. Now, try varying the blend control by rotating it counter-clockwise towards the dry setting to hear how the effect mixes in with the original track. If you notice that the signal is 'thinning out' when you are adjusting the mix, the wet and dry signals may be out-of-phase with each other, thus causing cancellation. Try depressing the 180º polarity reverse to fix the problem. If all is well, try adding more pedals.

One of the most common applications for the EXTC is using it to add grit to a vocal track. This can easily be done with a distortion or overdrive pedal. You will find that the most realistic effects are created by introducing slight distortion. But you can also have loads of fun creating Nine Inch Nails type of tones by going crazy. There are no rules, only guidelines.

Adding A Second Loop

If you have a Workhorse, you can use the Omniport to add a second effects loop in series after the front panel pedal chain. This is ideally suited for studio effects or to connect to a studio patchbay. The Workhorse TRS jack is wired tip-send, ring-receive following convention. To turn on, depress the OMNI INSERT switch on the front panel.

RADIAL EXTC SPECIFICATIONS

Circuit type: Solid state with transformer coupled effects loop
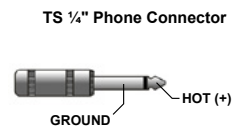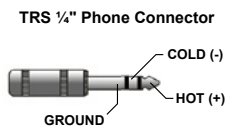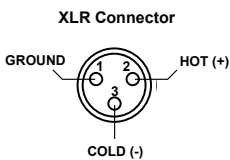Power requirement: 60mA, +/-16VDC

	DRY	WET
Frequency Response:	10Hz ~ 21kHz 0dBu, -3dBu	10Hz ~ 21kHz 0dBu, -3dBu
Dynamic Range:	94dB	>99dB
Gain	+5dB	+27dB
Signal to Noise Ratio:	94dB	>99dB
Intermodulation Distortion:	-117dBu	-110dBu
Total harmonic Distortion	<0.0006% 0dBu output	<0.0012% 0dB output
Maximum Input:	+26dBu	+20dBu

Features	
180° polarity reverse, OmniPort	
Input Connectors:	1/4", XLR
Output Connectors:	1/4", XLR

General	
Conditions:	For use in dry locations only between 5°C and 40°C
Warranty:	Radial 3-year, transferable

CONNECTOR WIRING

XLR Connector

TRS ¼" Phone Connector

TS ¼" Phone Connector

RADAIAL EXTC BLOCK DIAGRAM

THREE YEAR TRANSFERABLE LIMITED WARRANTY

This product is intended for professional use only. The user should be familiar and experienced with the 500 series rack and module format.

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