Radial engineering EXTC-SA Reamp Effects Reamper User Guide

Contents

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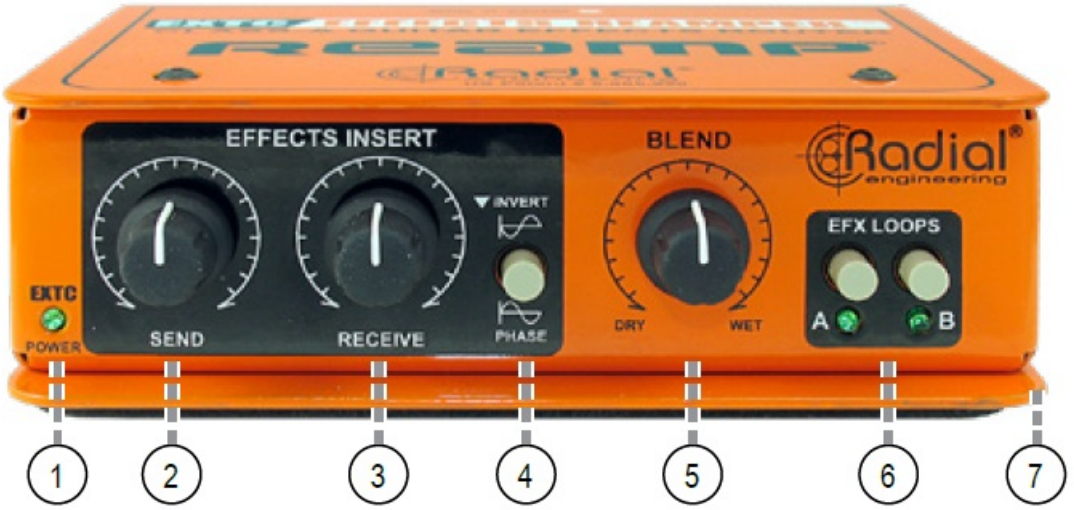
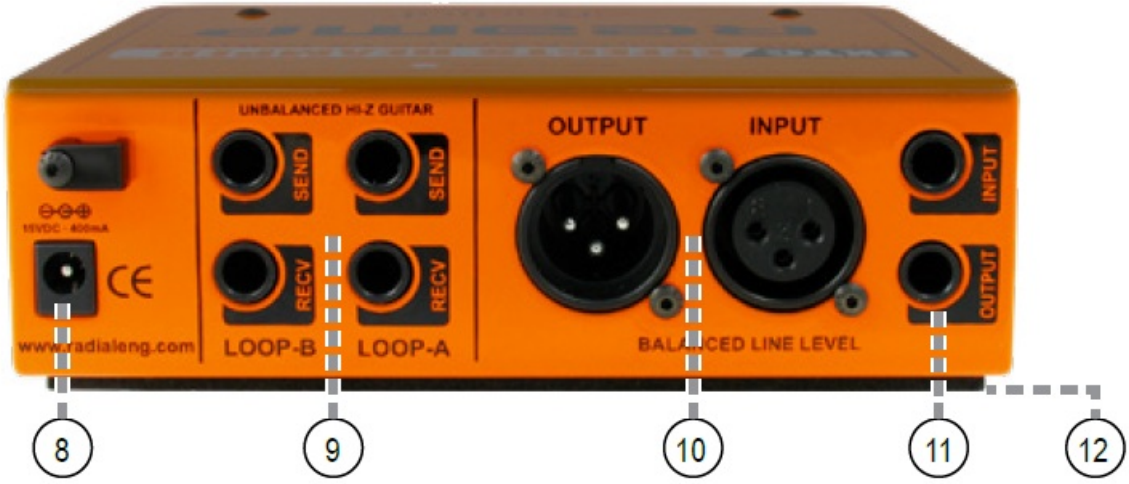
FEATURE SET



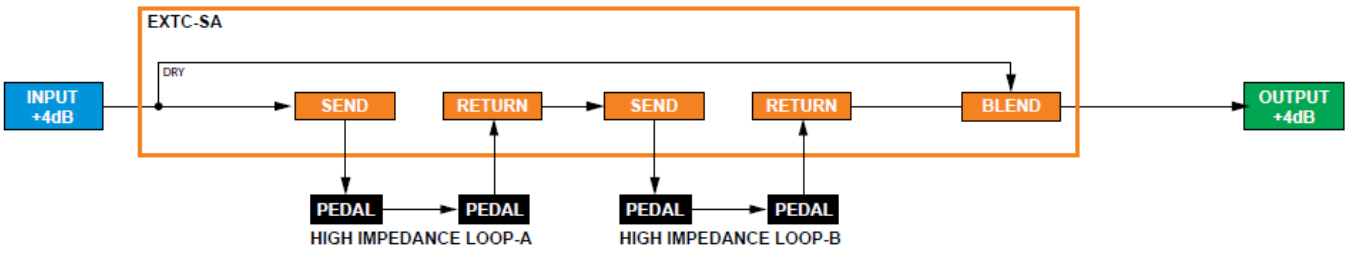


1. **POWER LED** – Indicates when the unit is powered on.
2. **SEND LEVEL** – Used to adjust the output level going to the pedals and optimize signal-to-noise for best performance.
3. **RECEIVE LEVEL** – Used to set the effects loop return level and further optimize signal-to-noise.

4. **180º POLARITY INVERT** – This 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.
5. **BLEND** – This lets you adjust the wet-dry mix between the original unprocessed signal and the EXTC-SA effects loops.
6. **LOOPS ON/OFF** – Turns the A & B loops on and off. An LED indicator illuminates when a loop is active.
7. **BOOKEND DESIGN** – The enclosure design creates a protective zone around the front controls.
8. **POWER ADAPTER** – Connection for the included power supply with a handy cable clamp to prevent accidental disconnection.
9. **¼" SEND and RECV** – Separate LOOP-A & B send and receive jacks used to connect guitar pedals to the EXTC-SA. LOOP-A is a transformer isolated to eliminate the hum and buzz caused by ground loops.
10. **XLR I/O** – Balanced line-level input and output jacks for connection to professional audio devices.
11. **¼" TRS I/O** – Balanced/unbalanced line-level input and output phone jacks.
12. **FULL BOTTOM PAD** – Won't scratch, keeps the EXTC-SA in one place, and provides electrical isolation.

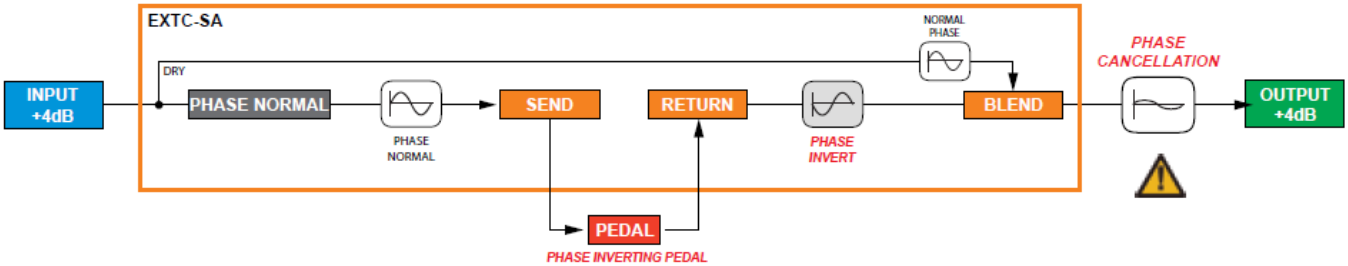
OVERVIEW

The Radial EXTC-SA is a professional audio interface that takes a +4dB balanced line-level signal and converts it to a guitar-level effects loop and then re-converts it back to a +4dB balanced line-level signal. In other words, you send in a balanced signal from your recorder, adjust the loop send level that drives the pedals. Set the return level from the pedals as it comes back and send the resulting signal to your recording system.

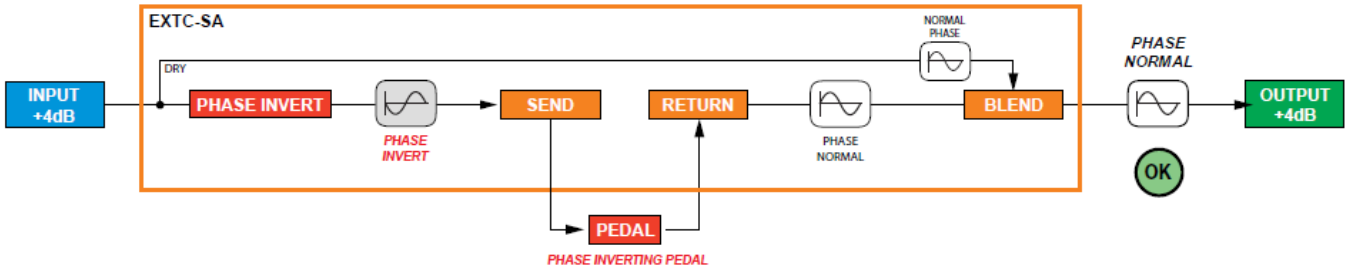


Although simple in principle, the key to the EXTC-SA's performance is how quietly it does the task. This is achieved by employing full-sized discrete electronic components, class-A circuitry and transformer isolation to help eliminate the hum and buzz that is common with pedals and guitars. The other cool 'trick' inside the EXTC-SA 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 PHASE INVERT switch plays an important role by ensuring both the dry and wet signals are in phase. The next diagram shows how the PHASE INVERT switch reverses the signal polarity before it gets to the offending pedal. Pedal "B" gets tricked into re-inverting the signal back to normal phase.



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. Connect the external power supply to the EXTC-SA. There is no power switch. The EXTC-SA will power up as soon as you connect the supply. An LED on the front panel will illuminate when power is connected.

Start by setting up the controls as follows:

1. Set the blend control to the wet position (fully clockwise).
2. Make sure the PHASE INVERT is set to normal (switch outward).
3. Set the send and receive level controls at mid-way (12 o'clock).

Connections between the EXTC-SA and your pedals are made via the unbalanced high impedance ¼" LOOP-A & B jacks. Connections to the recording system are made through the balanced XLR and ¼" TRS inputs and outputs jacks.

Connect the +4dB output from your recorder to the balanced INPUT on the rear panel. To send the processed signal back, connect the balanced EXTC-SA output back to your recording system and route the signal to a new track. To connect your pedals, simply patch from the high-Z ¼" SEND jack to your pedal chain input. The output of the pedal chain is returned to the EXTC-SA by connecting to the RECV jack. We suggest you start with one pedal patched into LOOP-A before connecting more pedals to LOOP-B. This will make it easier to troubleshoot when first setting up the EXTC-SA.

Turn on the effect pedal and select LOOP-A by depressing the front panel switch. An LED will indicate LOOP-A is active. Press play on your recorder and send the track to the EXTC-SA input. 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 any effect device. Now, try varying the BLEND control by rotating it counter-clockwise towards the dry setting to hear how the effect mixes with the original track. If you notice that the signal is 'thinning out' when the BLEND control is around the 12 o'clock position the wet and dry signals may be out-of-phase with each other. The 'thinning out" is the result of phase cancellation between the wet and dry signals. Try depressing the PHASE INVERT switch to fix the problem. If all is well, try adding more pedals and connecting LOOP-B.

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. One of the most common applications for the EXTC-SA 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 blending slight amounts of distortion with the dry signal. But you can also have loads of fun creating Nine Inch Nails-type tones and generally going crazy. There are no rules, only guidelines.

RADIAL EXTC-SA SPECIFICATIONS

- **Circuit type:** Class-A discrete, transformer coupled.
- **Power requirement:** Radial 15VDC/400mA power supply included.

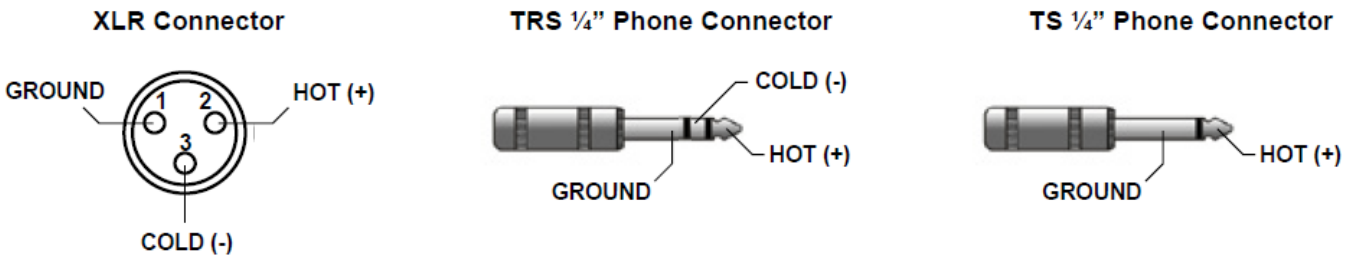
	DRY	**WET**
Frequency Response:	20Hz ~ 20kHz +/- 1.5dB	20Hz ~ 10kHz +/- 3.5dB (-8dB @ 20kHz) Shaped for musical in struments
Voltage Gain:	0dB	12dB – send & receive at max 6dB – s end minimum, receive max 0dB – send & receive set at 12 o'clock
THD+N (1kHz):	<0.005% @ 0dBu	<0.002% @ 0dBu
Noise:	-93dB	-84dB
Intermodulation Distortion:	<0.003% @ 0dBu input	<0.02% @ 0dBu input
Maximum input:	+11dBu	+11dBu

Line Level I/O	XLR & ¼` TRS INPUT	XLR & ¼` TRS OUTPUT
Type:	Rear Panel Input – Balanced XLR Female & ¼` TRS	Rear Panel Output – Balanced XLR Male & ¼` TRS
Impedance:	15k Ohms	200 Ohms
Headroom:	–	+25dBu

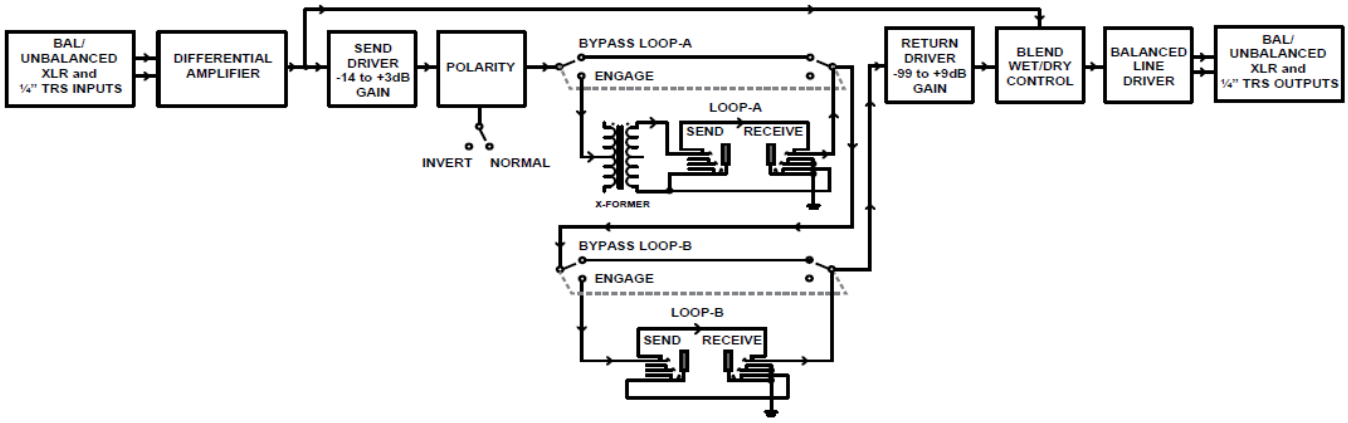
Effects Loop I/O	SEND 1/4” output	RECEIVE 1/4” input
Type:	Unbalanced ¼”	Unbalanced ¼”
Impedance:	1.5k Ohms	10K ohms
Gain (variable):	From -14dB ~ +3dB (0dB at center point)	From -99dB ~ +9dB (0dB at center point)
Maximum Gain:	+3dB	+9dB

All voltage gain specs with both effect loops bypassed. Insertion of effects units will vary gain somewhat due to their particular input and output impedances.

CONNECTOR WIRING



RADIAL EXTC-SA BLOCK DIAGRAM



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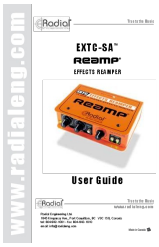
Documents / Resources

	**Radial engineering EXTC-SA Reamp Effects Reamper** [pdf] User Guide EXTC-SA, Reamp Effects Reamper, Effects Reamper, EXTC-SA, Reamper

References

- Radial Engineering