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**THE REDEYE 3D
PHANTOM**

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**PRELIMINARY
OPERATORS MANUAL**

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Dear valued Little Labs customer,

Congratulations on your purchase of the Redeye 3D Phantom. This box is the new improved major revision of the popular Little Labs Redeye direct box / re-amp box. More people are re-amping now than ever before, and we at Little Labs know re-amping! We made this new major Redeye revision because we wanted to make sure we continued to make the best sounding, most flexible, easiest to use, and reasonably priced re-amping and direct box product available.

For easy accurate re-amping the Redeye 3D lets you listen thru your whole recording chain, from Redeye 3D direct box, to mic pre to DAW (or tape machine), to Redeye 3D Re-amp, to your guitar amp. In DI (direct box) mode the instrument / re-amp out on the front of the Redeye 3D works as a thru signal so you can simultaneously feed your guitar amp while supplying a signal from the rear xlr to your mic pre and DAW or tape machine. In re-amp mode the instrument / re-amp out on the front of the Redeye 3D signal comes from the line level output of the DAW or tape machine (converted to Hi z guitar level signal) to feed your guitar amp. This simple way of listening thru the chain (re-amp mode) and being able to bypass the mic pre and DAW or tape machine in the chain (DI mode) makes level adjustments a snap. This also assures you a re-amped guitar sound that will be exactly what was heard when laying down the track.

The Redeye 3D phantom - the now even smarter flexible audio tool to aid you in all stages of your production. This manual is preliminary, meaning it will be full of typos and grammatical errors, but it should get you started.

Yours truly,

Jonathan Little

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REDEYE 3D PHANTOM WHAT IS IT MADE OF?

The original Redeye was a direct box or re-amping device using a Little Labs custom wound transformer. This transformer was chosen for its sonic characteristics and is made with the same core material and winding technique as the legendary UTC transformers found in many classic pro audio devices. The New Redeye 3D Phantom features two of these excellent transformers for simultaneous direct box and re-amping use.

We have also added to the now called Redeye 3D a very high quality, hi fi, phantom powered, high impedance instrument buffer. When you are using the Redeye 3D with sensitive passive pick ups, this high quality buffer assures no tone change from loading will occur.

For those who use active pick ups or prefer the sound of a passive direct box, you still have the option of plugging into the Redeye 3D direct box passively as in the original Redeye, with no phantom power necessary.

Besides the active buffer circuitry and the two transformers, the Redeye 3D is just a volume control and a bunch of high quality switches and connectors in a nice chassis.

You can make a couple custom changes internal to the Redeye 3D that might be just what a few of you need, but we'll talk about that later.

REDEYE 3D PHANTOM ACTIVE BUFFERED INSTRUMENT INPUT

This is the high impedance instrument input on the front of the Redeye 3D. You must have the Redeye 3Ds output male XLR on the rear of the unit plugged into a microphone preamplifier, and have the phantom power on the microphone preamplifier turned on in order to use this input. If the Redeye is properly hooked up to the pre and the phantom is on, the red led will be lit.

The maximum level that you can feed into this input is approximately +16dB before clipping (that's a lot for an instrument in). The input Impedance is approximately 1 Meg ohm. We experimented with a much higher input impedance which might of helped piezo pick up users (piezo users see DIY section if you want to know how to mod) but for standard guitars using passive pick ups like a Telecaster or a Les Paul the 1 meg ohm sounded like plugging directly into the amp, which when re-amping, is essential. We did not use a continuously variable impedance dull control. In our experience these get accidentally abused more than used and typically ended in the same position all the time.

REDEYE 3D PHANTOM UN-BUFFERED INSTRUMENT INPUT

This is the passive un-buffered instrument input on the rear of the Redeye 3D. This input requires no phantom power and the red led need not be on for the Redeye 3D to function in this passive mode. If you are looking for the same sound as the original Redeye this would be the input to use. It sends your instrument signal directly to the primary of the transformer.

This input is best for active instruments, keyboards, synths, guitars with pre-amps built in, anything with lots of gain and not sensitive to loading. The load presented by the Redeye or Redeye 3D for these type instruments is very high at approximately 30k ohm, but not high enough for passive devices which are much more sensitive to loading.

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The maximum level that you can feed into this input is not defined because a transformer doesn't clip, but NOTE: It is not designed for high level, high current, speaker signals.

REDEYE 3D PHANTOM

INSTRUMENT / RE-AMP OUT AND LEVEL TRIM

This is the high impedance instrument output on the front of the Redeye 3D. This is in DI mode the "thru" to the amp. In re-amp mode this is your re-amp output to the amp. The adjacent instrument/re-amp level trim works as an attenuator just like the volume control on your guitar and works in the thru and the re-amp out mode.

When using the active buffered instrument input this output in DI mode will be very close in level to what is plugged in, in other words it passes thru the Redeye 3D with approximately unity gain. I say approximately because depending on the amp it is plugged into it might have a little more or a little less, but it should be close. You can internally set this by moving a jumper to +3dB of gain instead of unity, but most guitar players like unity gain so it's just like plugging directly into the amp. See the DIY section if you want that extra 3dB.

When using the unbuffered instrument input this output in DI mode will be -3dB from what is plugged in, so in other words you lose a small amount of level. If you attempt to use this on a passive pick up, it will seem like more because of the combination of loading the pick up and this small level loss. The 3dB loss is due to travelling thru the internal electronics passively.

REDEYE 3D PHANTOM

RE-AMP OVERDRIVE

This button when engaged gives you an extra 10dB on the instrument/re-amp out, but only in re-amp mode. This can be useful when you recorded the track low, or you find even when hitting the recording apparatus at a healthy level, your particular instrument has a very high output and you need it to hit the amp harder. Metal heads will like this.

REDEYE 3D PHANTOM **EARTH LIFT & RE-AMP POLARITY**

The earth lift button should be engaged when you have everything hooked up, and you hear a hum in your amp or what you are recording. The hum is caused by a ground loop where more than one path to ground allows a current to flow between the grounds. If this hum doesn't know the song, it must be eliminated.

Re-amp polarity or on some devices called a phase switch makes the signal push instead of pull or vice versa. It only works on the instrument level re-amp out. You might not notice much of a difference when you push it. Where it really comes in handy is when you use the expansion in and out jacks with multiple redeye 3Ds feeding multiple amps. When different amps sound is combined in air or when miced and recorded, some amps push some pull and a much fuller sound is heard when they work together, all pushing or all pulling. This button allows you to easily make the amps work together. If you really want to get deeper into this polarity and phase thing, check out a Little Labs IBP!

REDEYE 3D PHANTOM

MIC LEVEL MALE XLR OUT

This is the output of the DI section of the Redeye 3D Phantom, what comes out here is a lo impedance (500 ohm) balanced signal approximately 18dB below what is plugged into the instrument inputs. It should be plugged into a microphone preamplifier and if you are using the active buffered input the microphone preamplifier should have phantom power engaged.

Understanding gain structure in recording is important. Keep in mind a passive pick up guitar puts out anything from -10dB to -25dB. Going thru a mic level direct box like the Redeye 3D drops this level by another 18dB so you need a microphone preamplifiers gain set anywhere from +32dB to +47dB to get a +4dB (0VU) line level signal. Pop quiz later....

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REDEYE 3D PHANTOM **LINE LEVEL FEMALE XLR IN**

This is the input of the re-amp section of the Redeye 3D Phantom, what needs to be fed in here is a line level (+4dB) lo impedance balanced signal from the output of a DAW, a tape machine or send off a console. The input impedance on this input is approximately 9k ohm, or 4k ohm if the re-amp overdrive is selected. I should note some other re-amping devices have a 600 ohm input impedance which can be tough to drive, and certainly cannot be daisy chained like you can by using the expansion in and out jacks of the Redeye 3D (see the next topic).

After the signal enters the Redeye 3D, the signal will be reduced by approximately 15dB and converted to a hi impedance unbalanced (guitar signal) and be available at the front panel instrument/re-amp level out jack to feed an amp or pedal.

REDEYE 3D PHANTOM **EXPANSION IN AND EXPANSION OUT**

These are simply parallel (1/4" TRS) jacks with the line level female XLR in. They allow you to plug in unbalanced lo impedance signals from the output of a DAW, a tape machine or send off a console, using a TS (tip sleeve) plug, or from a balanced TRS plug if you don't have an XLR.

The expansion in and outs allow you to easily daisy chain multiple Redeye 3Ds so you can feed multiple guitar amps or pedals. I should note here you can plug in the expansion in jack on the Redeye 3D from our other products, the PCP or the Multi Z PIP expansion out jacks, but here please use a TRS balanced cable. This creates another output of these devices which can be located far from the source. So lets say you are feeding three amp heads in the control room with the PCP use this method to feed a combo amp in the live room.

You can use your imagination and for example utilizing one microphone preamplifier fed from the Redeye 3D mic level out XLR and back in the line level female XLR in, create a guitar splitter which has as many outputs as Redeye 3Ds. If you have four Redeye 3Ds rack mounted, in a pinch you can easily create a truly excellent transformer isolated guitar splitter! You can do a lot more than that, but I will let you wrap your brain around it and figure out all the possibilities..

REDEYE 3D PHANTOM **INTERFACING GUITAR PEDALS**

The Redeye 3D is a simple and easy way to interface guitar pedals into a pro environment. Simply plug the Redeye 3Ds instrument re-amp out into the pedals input then plug the pedals output into Redeye3Ds instrument in (you can use the buffered or unbuffered in, it will most likely make little difference). Feed the mic level out into a microphone preamplifier and you have a +4dB balanced line level in and out effect. BUT NOTE !! Keep the di/re-amp button engaged or you get a loop and a nasty squeal will result!

Many times you can come right out of the pedal and into the console without using the Redeye 3Ds DI. You might have to turn the line trims up a little, and this way you don't have to be paranoid of disengaging the re-amp button.

REDEYE 3D PHANTOM **DIY MODS**

The Redeye 3D has a couple things you can do internally which a small majority of you might want.

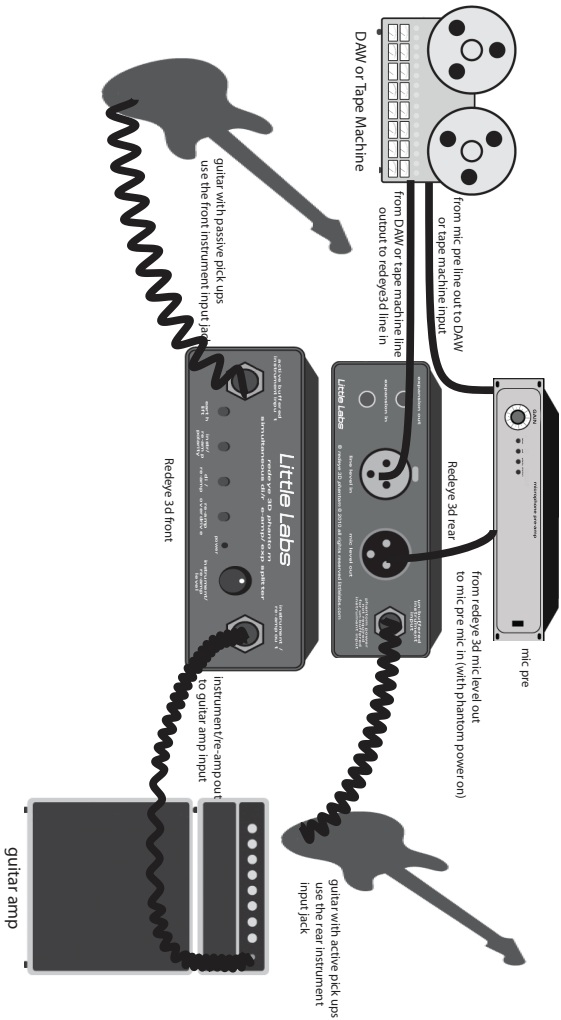
Input Impedance increase on the buffered input. I will only suggest you do this if you are a piezo pick up user that doesn't use a pre-amp in front of the piezo, or for some bass guitars. On standard guitars, Telecaster, Strat or Les Paul it will just sound clangy. The resistor to change is #209 to probably a 10 Meg ohm. Solder carefully, keep it clean kids or you'll void the warranty.

Instrument/re-amp level trim fully clockwise will change from unity to +3dB. This gives you a little gain on the instrument re-amp out that you can always turn down, and only works when using the buffered instrument in. Change the zero ohm jumper from #16 to #17. Solder carefully, keep it clean kids or you'll void the warranty.

Convert the un-buffered in to a buffered out long guitar cable driver. Change the zero ohm jumper #16 to a 100 ohm resistor and jumper a wire over the normal on the tip of the jack. Solder carefully, keep it clean kids or you'll void the warranty.

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REDEYE 3D PHANTOM COMPLETE RE-AMPING CHAIN



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SEVEN EASY STEPS TO ACCURATE RE-AMPING

- 1) Plug your passive pick up guitar into the active buffered instrument input on the front of the Redeye 3D or your active instrument into the un-buffered instrument input on the rear.
- 2) Plug the male xlr mic level out into a microphone preamplifier. If you are using the active buffered instrument input turn phantom power on the pre on.
- 3) With all buttons on the Redeye 3D out, plug your guitar amp into the instrument re-amp out. Strum your instrument and listen, if you have a hum, not a typical pick up related hum, but a constant hum like a half stuck in the guitar amp jack hum, try the earth lift switch, that should cure it. If you don't, don't push anything.
- 4) Feed the output of the microphone preamplifier into whatever your recording medium is, could be protocols, a tape machine, a DAW with a funny name or... and put this machine in input so you monitor thru the machine.
- 5) With the gain settings set low on the microphone preamplifier push the re-amp button in on the Redeye 3D. Slowly bring your gain up on the Microphone pre-amplifier so the sound level coming from your amp sounds the same as when the Redeye 3D was in DI mode (button out) you can go between the two setting until it's right. That should be your right setting. If you find you are hitting the recording medium too hard to get the level you need, you can push in the re-amp overdrive in and back off the microphone preamp level.
- 6) Go ahead and record something, when playing back, the Redeye 3D must be in re-amp mode.
- 7) The sound coming back should sound exactly like what you heard when the recording medium was in input and provided your microphone preamplifier is relatively clean and your recording medium is also clean it should sound very close to plugging and playing directly into the amp.

You might not have the luxury of having the whole re-amp chain but trying this method will give you confidence that your re-amped signal will sound "correct".