ADL OPUS 3 Limiter

Introduction

Congratulations on your purchase of the ADL Opus-3 broadcast discrete optical attenuator compressor/limiter, a close cousin to our world famous ADL vacuum tube1000 and 1500. The Opus-3 is an all discrete solid-state design commonly referred to as a fixed gain circuit. The heart of the Opus-3 is our custom hand matched optical attenuator, same one found in our world renowned 1000 mono and 1500 stereo limiters. Hand matching components allows us to create a unique soft knee compression characteristic representative only of the ADL brand. Although time consuming, choosing Identical parts results in consistency and reliability for all our valued clients, engineers and producers.

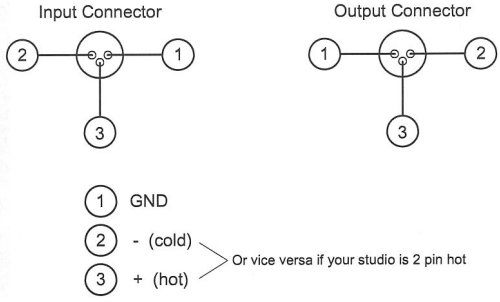
The Opus-3 has many practical applications, allowing engineers and record producers flexibility in the studio. From tracking, mixing, vocals, instruments, stereo buss, and live concert sound reinforcement to film and broadcast work.

Installation

Audio Connections for Transformer Balance Systems

Back panel, XLR audio input and output are transformer balanced and floating, meaning there is no ground connection from pin 2 and pin 3. For optimum results your input signal should have an impedance of 600 ohms. Use good quality audio cables for best results (Mogami, Canare or Monster cable, etc) Pin 2 or pin 3 can be wired hot. Be consistent: if you wire pin 3 hot on the input, make sure to wire pin 3 hot on the output. Please follow diagram 1 for the proper audio hookup.

Diagram 1



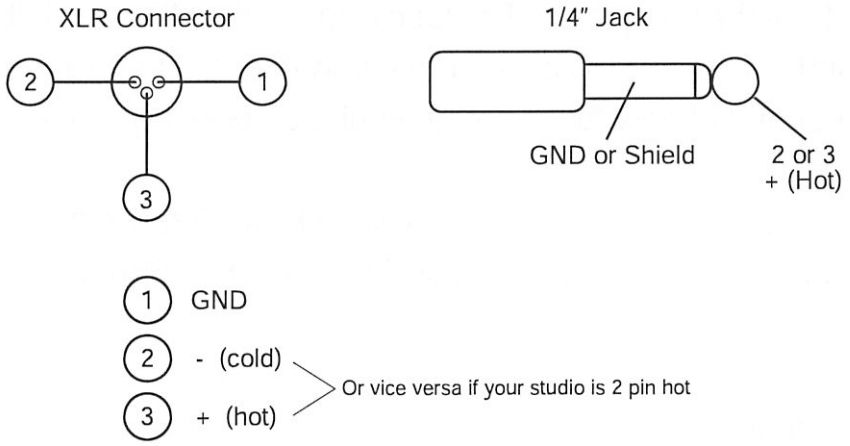
Audio Connections for Transformer Balance Systems

If used in an unbalanced system, please follow the three steps below:

1. Connect the ground or shield of your audio cable to pin 2 of the XLR
2. Connect the hot wire to pin 3 of the XLR
3. Repeat step 1 and 2 when using a 1/4" jack (see diagram 2)

Please note, this set up is for audio systems with pin 3 hot. If your audio system is pin 2 hot then connect the ground or shield of your audio cable to pin 3 and the hot to pin 2. Remember to keep it the same on both the input and output.

Diagram 2



AC Connections

The Opus-3 operates at 48-VDC, so please be careful. Disconnect power cable when servicing. All servicing must be performed by ADL or a trained technician. Do not operate with top cover off. Do not use near water and avoid any moisture. Always use a grounded AC receptacle.

ADL assumes no responsibility for possible injury from electric shock while servicing this product or operating it with the top cover off. Turning the unit off while not in use will increase component life. If you have any questions, please contact ADL. To further increase component life, please allow for adequate ventilation at rear of unit.

1. Provided is an AC cable
2. 48-VDC Single Output Desktop PSU
3. Connect AC plug to a properly grounded AC receptacle only.
4. Apply power and allow for 10 minute "warm-up" before using.

Fuse Replacement:

Should it become necessary to change the fuse, first turn the unit off and unplug the AC power cable from the receptacle. The fuse is located on the rear left side. Gently remove the fuse cover and discard bad fuse and replace with correct new fuse. Please note, if your unit is in constant need of new fuse, it may require a servicing so please contact us.

Fuse . . . . . 120-V — 220-V . . . .0.1– Amp Slow Blow 5x20mm

Front VU Meter Lamp:

Internal 6-VDC LED lamps an estimated 50,000 hour operating time.

Operations

The Opus-3 employs an electro-optical attenuator to achieve transparent and smooth soft knee compression. The Opus-3 features custom made audio transformers for a warm thick sound. The warmth and clarity of the Opus-3 is beneficial to everything from tracking to mastering. Please try not to over do it!

Controls

Gain

Continuously variable, controls the amount of level at the output XLR located on the rear panel. The amount of level is visible on the meter when gain is rotated clockwise and GR/Ouput switch is set to output. Meter level will change according to the amount of gain and compression. Increasing compression typically requires an increase of gain--typically referred to as make-up gain.

Peak Reduction

Continuously variable, controls the amount of compression. Peak reduction starts when the input level cross the compression threshold. Compression is a function of the amount of both gain and peak reduction. An increase in gain will allow for more sensitivity to the peak reduction circuit prompting more compression.

GR/Output Switch

Two position switch linked to the VU meter indicating either the amount of level or the amount of peak reduction. Set to output, the

GR/Output Switch

meter will indicate overall level from rear XLR input to output. Zero VU is equal to +4 dBm on the output XLR. Meter motion will appear to bounce toward the right side according to varying levels or gain.

Set to GR the meter will start at zero VU and move toward the left side as peak reductions is increased. The amount of meter deflection is commensurate with peak levels. When a desired amount of compression is reached, switching back to output may indicate a lower level and may require more level or make-up gain. Finding a happy medium or "sweet spot" between the amount of gain and peak reduction is subjective and according to your personal musical taste.

Limit/Compression Switch

Changes the sonic characteristics of the compressed signal by changing the ratio. For instance, gentle compression may have a ratio of 3:1 (a 3 dB increase at the input will result in a 1 dB increase at the output) while heavy limiting may have a higher ratio of 8:1. The VU meter typically indicates two types of levels, RMS (Root Mean Squared) and peak. RMS is a combination or average of all the wave forms displayed on the VU meter and a function of the loudness of the music. Reducing RMS or overall loudness is best served by the compression setting.

Peaks or transient spikes are not average and can quickly distort great performances. Sharp transients may cause clipping and are capable of appearing or riding above RMS and are best served by the limit setting.

Normal/Pad Switch

Attenuates the level or gain from the input XLR to the input audio transformer by 8 dB to prevent distortion or clipping. For instance, disconnecting from a line level source (typically operating at +4 dB) and connecting to a hotter guitar amplifier would typically require this pad.

Stereo/Mono Switch

Two Opus-3 limiters can either be configured as a stereo pair or two independent mono channels. Stereo Linking: Connect both units via a ¼" guitar cable (12" long) and switch in the up position. For mono use, simply return both switches to the mono setting. ¼" stereo link jacks are located on the rear panel. For accurate stereo operation, please make sure both gain and peak reduction knobs are positioned the same on both channels.

Front Panel Meter Adjust

Mechanically adjusts VU meter. When GR/Output switch is in the up position the meter should indicate zero VU. This is factory set and may vary slightly and may need occasional tweaking.

1. Allow for 10 minutes warm-up
2. Set meter switch to GR
3. Peak reduction full CCW slowly adjust trim pot for a zero reading.

Front Panel Stereo Adjust

When both channels are stereo linked, stereo adjust will allow both units to track and compress equally in both channels.

Internal Adjustments

High Frequency Contour Adjust (P--4)

Changes the sensitivity of the gain reduction circuit ranging from high to mid high frequency. The factory setting is full (CCW) allowing the detection circuit normal compression across the full frequency spectrum. A (CW) setting will increase sensitivity causing the Opus-3 to compress more of the high and mid-high than the low frequencies.

SP--3 test point and (P--2)

This 500-K top trim potentiometer sets the bias voltage (28-VDC) for Q--17. The bias voltage test point is SP--3. If your Opus-3 should require servicing we recommend you contact ADL or a trained technician.

Terminating Resistor JP--1

A 604-ohm terming or impedance matching resistor is connected across the secondary side of the output audio transformer. This resistor or "load" slightly reduces the output gain, but adds stability to the transformer. A properly loaded transformer will exhibit minimal ringing or overshoot and flat frequency response with minimal lose of audio power.

Specifications

Frequency Response . . . . . .20 Hz ------ 20 kHz +/- 1 dB

Clip. . . . . +28 dBu

Distortion THD-N. . . . . 0.19% @ +4 dB

Maximum Gain Reduction.....20 dB

Attack Time.....approximately 1.5 ms

Release Time.....approximately 1 to 2 second

Noise, unweighted . . . . . --85 dBu

Input/Output Impedance . . . . . 600 ohm

Dimensions . . . . . 3-1/2" x 7-3/4" width x 10-1/2" depth

Fuse . . . . . 120-V---220-V . . . .0.063--Amp Slow Blow 5x20mm

Shipping Weight . . . . . 4 lbs. (boxed, 7 lbs.)

Power Consumption . . . . . 6 Watts

Warranty.....One year, parts and labor

Stereo rack kit.....anthonyadl@aol.com

OPUS-3 STEREO RACK KIT ASSEMBLY

Below are all parts needed for stereo linking two limiters together:

ADL stereo Rack Kit

6x 6-32 – 1/2” screws

6x #6 lock washers

6x #6 nuts

1x 1/4” guitar cable about 1/2” long, to connect between the two units.

1. Disconnect power from both channels.
2. Remove both top covers.
3. Locate both channels so they are side by side, aligning two side screw holes together. Add 2X 6-32 screws, attaching both channels together, creating one unit.
4. Add ADL Stereo Rack Kit around the two channels and secure with the last four 6-32 screws.
5. Reinstall the top covers to resume operation

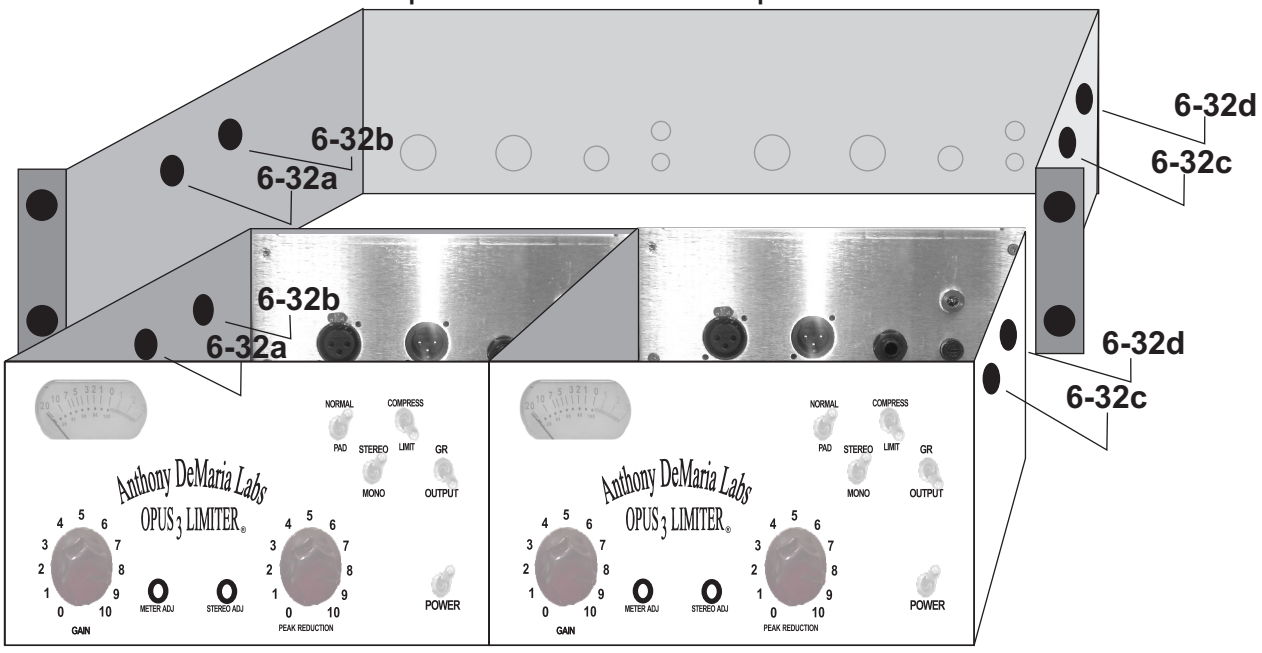
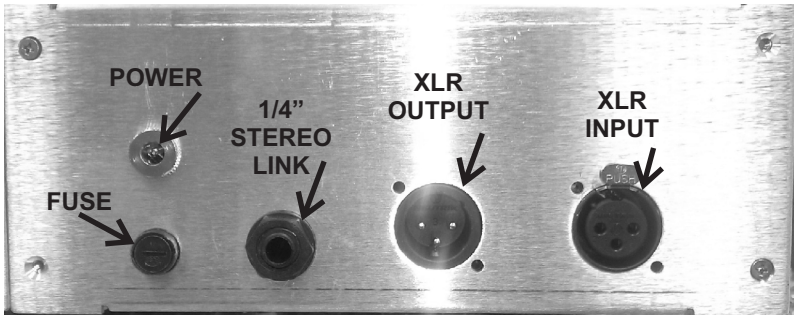


DIAGRAM 3

REAR PANEL



WARRANTY

Anthony DeMaria Labs, Inc.
122 Windbyrne Dr.
Cary, NC 27513
845-255-4695
anthonyadl@aol.com

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Our warranty is express or implied and specific only for a new ADL 1600 clearly marked with a serial number issued by ADL and is in lieu of all other warranties. The ADL 1600 is covered by limited and conditional warranty starting from date of purchase for a period of one year. This warranty applies to the original client/owner (individual who first purchased the product) and may in no way be transferred to a second owner. ADL will perform multiple inspections, tests and burn-in procedure to insure you are receiving a product that is free from defects in materials and workmanship.

If you receive a defective 1600 or damage was incurred in shipping, please notify us and we will arrange an exchange for a new unit. The terms and conditions of this one year warranty may only apply of the product was received by the purchaser in full working condition. In the event that your 1600 malfunctions due to improper installation, use in any way which would compromise the design of the unit, improper ventilation, alterations or modifications of any kind, it would immediately void/nullify your warranty. In the event that a 1600 is received as defective it must be sent back to our factory for repair. ADL will not assume responsibility or be held liable for any 1600 that is damaged in transit.

Anthony DeMaria Labs
Opus 3 Limiter
845-594-2086
anthonydemarialabs.com
anthonyadl@aol.com

DATE_____

ARTIST_____

SONG_____