



LIMINATOR 2

CLASS A DUAL TRANSFORMER STEREO COMPRESSOR

OWNER'S MANUAL

www.airfielddaudio.com

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INTRODUCTION

Thank you for choosing Airfield Audio.

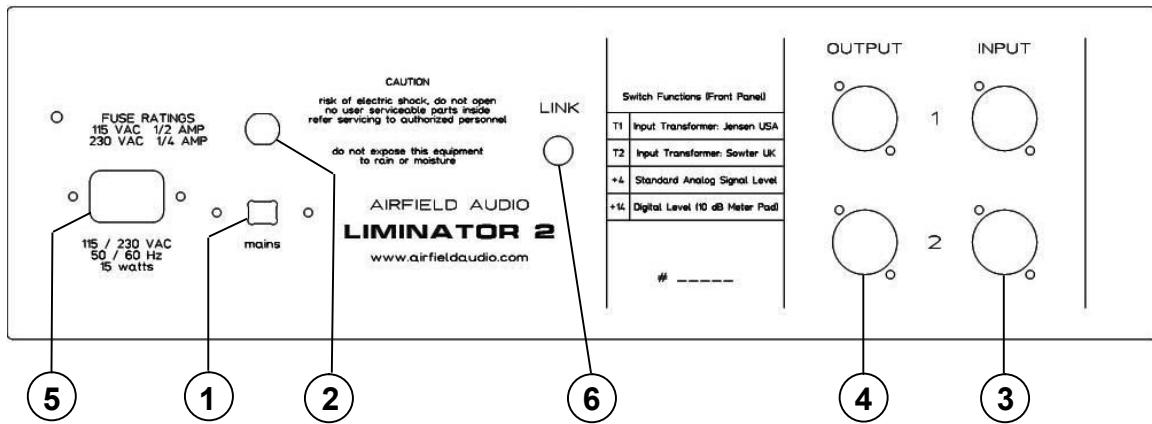
Our many years of specializing in tech service, custom build and modifications to high end studio and professional audio installations are now being expanded with an exciting new product line. For the Airfield Audio Liminator 2 we have analyzed more than a dozen classic and vintage audio compressors, and have distilled the best of the best into this device. Your ears will love the sound of this unique analog processor.

Class A discrete transistor circuitry is used exclusively, with classic input and output transformers deployed as an important element of the design. In fact, a main feature of the Liminator 2 is the inclusion of 2 switchable input transformers per channel for a great range of flexibility and tone. In addition, dual power supplies are incorporated for absolute minimum crosstalk and maximum stereo separation. All front panel controls as well as internal components have been selected for ruggedness and long life. We take pride in quality construction; all units are handcrafted with care, thoroughly bench tested, calibrated and burned in for 48 hours.

The Airfield Audio Liminator 2 exemplifies state of the art analog audio design, and delivers natural, musical characteristics to the recording process. One of the most versatile compressors ever invented, it can be used with confidence on voice, all instruments, any sound source, stereo or multi-channel mix and mastering.

For reasons not even science can fully explain, the best analog devices create a sonic magic that flows from the sound source through real parts and circuitry into the human ear with the highest clarity and resolution. Airfield Audio is dedicated to this natural process. It sounds very very very very good.

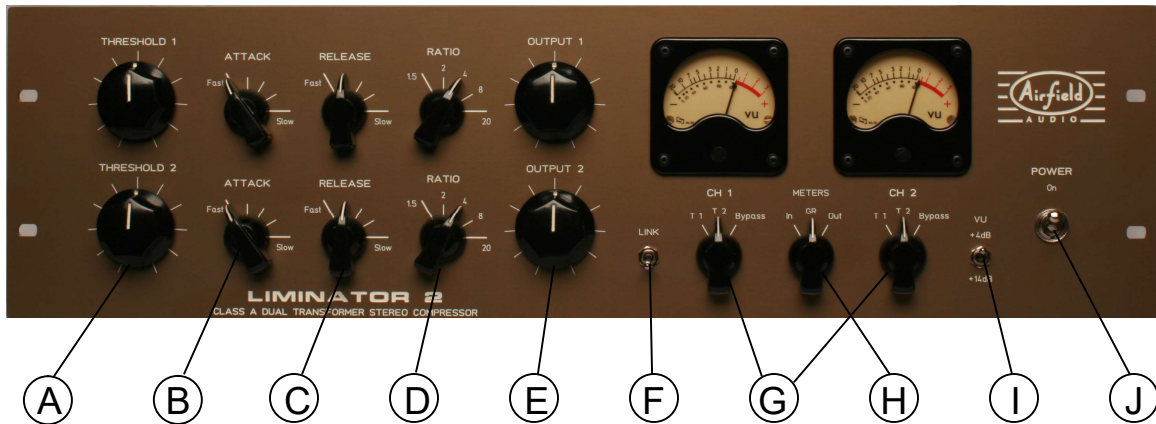
INSTALLATION



REAR PANEL VIEW

1. **IMPORTANT** : SET THE MAINS SWITCH ON THE REAR PANEL TO THE CORRECT VOLTAGE.
2. Be certain that the unit has a ½ AMP fuse (115 VAC mains) or ¼ AMP fuse (230 VAC mains).
3. Connect line level audio input cables from your source (microphone preamp, EQ, analog console or DAW outputs) to the 3 pin XLR female connectors. The input XLR connectors are Balanced Transformer Coupled, pin 2 hot.
4. Connect audio output cables to the 3 pin XLR male connectors and plug them into your recording/mixing device. The output XLR's are Balanced Transformer Coupled, pin 2 hot.
5. Connect the supplied IEC power cable to the IEC mains socket on the rear panel. **USE ONLY A 3 PRONG GROUNDED POWER CABLE**. For safety reasons do not lift the ground on the power plug by using a 3 to 2 ground lift adapter.
6. Link Jack: connect a standard ¼" unbalanced guitar type cable or Y-cables. Should be used for multi-channel operation of three or more Liminator channels.
7. Turn on the unit and allow 30 minutes warm up.

FRONT PANEL



- A. THRESHOLD** Continuously variable adjustment.
This control determines the amount of gain reduction.
Fully counter-clockwise (ccw), gain reduction is off.
Fully clockwise (cw), gain reduction is at maximum.
- B. ATTACK** 5 position rotary switch, ccw: fastest, cw: slowest.
- C. RELEASE** 5 position rotary switch, ccw: fastest, cw: slowest.
- D. RATIO** 5 position rotary switch, select 1.5 (gentle), 2 (moderate), 4 (medium), 8 (heavy) or 20 (extreme) compression.
- E. OUTPUT** Continuously variable adjustment.
This control determines the amount of gain make up.
Fully ccw, audio is off. Fully cw, gain is at maximum.
This control knob goes to 11.
- F. LINK** This switch mixes the channel control voltages for stereo operation
- G. T1 / T2 / BYPASS** Select input transformer or Bypass. T1 (Jensen) is very clean and transparent. T2 (Sowter) sounds richer with more harmonics.
- H. METERS SWITCH** 3 position rotary switch, select meter function: In (Input Level), GR (Gain Reduction), Out (Output Level).
- I. +4 / +14dB** Select VU meter level, +4 analog, +14 digital reference level.
- J. POWER** Power is On when switched up. Meters will illuminate.

OPERATION

All front panel controls are designed to be functional and uncomplicated.

Initial control settings:

1. Set VU switch to system level: +4dB is for standard analog signal level tracking and mixing, +14dB is for digital mixing and mastering.
2. Set METERS switch to “In”, and set CH1 and CH2 switches to “Bypass”.
3. Set THRESHOLD controls off (fully counter-clockwise).
4. Set OUTPUT controls to unity gain position (12 o’clock noon).
5. Set ATTACK, RELEASE, and RATIO switches to straight up (12 o’clock noon). The Liminator 2 has been designed so that this position is a useful starting point. These switches can be adjusted to taste from this position.
6. Apply analog line level signals from your sources (mic pre-amp, EQ, console or DAW). Adjust the output of each source to get nice hot levels coming into the Liminator. VU meter readings should average around 0 and up into the red zone.
7. Set METERS switch to “GR”. Set CH1 and CH2 switches to either T1 or T2. For stereo operation, both channels should be set to same input transformer.
8. Slowly turn up the THRESHOLD controls, and observe gain reduction of signal on the VU meters. Normal gain reduction is 2 to 6dB. Higher RATIO settings will result in deeper compression.
9. While listening, adjust the OUTPUT controls to maintain appropriate levels back into your signal path. To view the output levels on the VU meters, set METERS switch to “Out”. After “In” and “Out” levels have been checked, it is recommended that the METERS switch be normally left in “GR” position.
10. Adjust ATTACK. This control represents the amount of time a compressor needs to react to an input signal change. In general, fast settings are often used while tracking percussive sounds (drums, piano, choppy rhythms). Mid settings are good for voice, brass, acoustic guitar. Slow settings work well with strings, synth pads, creamy guitar solos, and vocal chorus. On the stereo mix start with mid settings and then, depending on the music, adjust towards fast or slow if needed.

11. Adjust RELEASE. This control determines the amount of time for the gain of a compressed signal to return to normal (or 0dB reduction). Fast release returns the gain to normal quickly, which is useful for short-duration signal peaks. Slower release settings are less audible, useful in mixing and mastering.
12. RATIO. This control indicates the amount the output will change in relation to changes in the input level. The overall dynamic range of the program signal is reduced or “squeezed”. (In theory, a ratio setting of 2 means that a 2dB input level change above threshold will produce a 1dB output level change). A ratio setting of 1.5 or 2 is gentle or moderate compression, very useful when mixing or mastering. At a setting of 4, compression becomes a bit more audible, which is normal and useful for vocal recordings and general purpose medium compression tasks. A setting of 8 would be considered heavy compression, for example live drums, loud guitars, controlling background vocals, etc. At setting 20, you are using extreme compression. At this setting the output level will essentially remain constant despite increases of input level above threshold. Ultimately, your best choices of various settings will come from using your ears.....they will tell you more than the meter.
13. T1 / T2 / Bypass switch. Select one of two input transformers. T1 is a medium impedance Jensen transformer. Select it for clean, uncolored, accurate, flat response; perfect for mixing, mastering and pristine tracking. T2 is a lower impedance Sowter transformer; select it when thicker musical harmonics and richer tone are desired for tracking or mixing. Select Bypass (true relay bypass) for comparison between unprocessed and compressed signals.
14. Select LINK when both Liminator 2 channels are used together for stereo recording, mixing or mastering. The gain reduction control voltages are thus mixed, which stabilizes the sound-stage image and prevents drift between channels. Connect a Link cable or Y cables (see page 3) between multiple Liminator units for multi-channel mixing. Each channel’s controls will remain individually operational for compression settings, and are usually set identically. With LINK switch in down position, channels operate in dual mono mode.
15. Unbalanced operation. The Airfield Audio Liminator 2 works fine in unbalanced audio systems. Typically, input and output XLR cables (with pin 1 and 3 joined together) wired to ¼” or RCA connectors will do the job. For proper operation of THRESHOLD control, ensure that the output of your source device delivers a good hot +4dB (0 VU) signal level.

SPECIFICATIONS

INPUT IMPEDANCE: 15K Ω , Transformer Balanced, Pin 2 hot

OUTPUT IMPEDANCE: 75 Ω , Transformer Balanced, Pin 2 hot

FREQUENCY RESPONSE: ± 0.25 dB, 20 Hz to 20 kHz
- 2dB at 10 Hz, -2dB at 68 kHz with Transformer 1
- 2dB at 10 Hz, -2dB at 120 kHz with Transformer 2

NOISE: less than -80 dB, 20 Hz to 80 kHz, -92 dB typical below operating level

DISTORTION: less than .02% THD at unity gain, 4dBu input level
.1% THD at 24 dBu input level

MAXIMUM OUTPUT: + 32 dBu into 600 Ω

GAIN REDUCTION RANGE: 0 ~ 20 dB

CROSSTALK: -89 dB @ 1KHz, + 4dBu signal level

ATTACK: 11~ 80 milliseconds, ratio/threshold dependent

RELEASE: .1, .3, .6, 2, 6 seconds

GAIN REDUCTION ELEMENT: LD1 forward biased optical resistive module

METER: dB Gain Reduction
dB Input, dB Output (0VU = + 4dBu or +14dBu)

POWER REQUIREMENTS: 20 watts, 115 / 230 VAC, 50 / 60Hz

FUSE TYPE: slo-blo, 1/2 Amp for 115 VAC mains, 1/4 Amp for 230 VAC mains

DIMENSIONS: 19" Rackmount 3U Chassis

DEPTH: 8" (200mm)


WEIGHT: 18 pounds (10 kg)

WARRANTY AND REGISTRATION

Airfield Audio equipment is covered by a limited warranty against manufacturing defects in materials and craftsmanship for a period of two years from date of original purchase. Under the terms of this warranty, Airfield Audio Inc. will repair or replace the part or parts of the product which prove to be defective (except meter lamps, which are guaranteed for 6 months from date of purchase), provided the purchaser gives Airfield Audio prompt and satisfactory proof thereof.

If the equipment requires warranty repair, please contact your dealer or Airfield Audio by telephone, fax or email. The purchaser's sole remedy shall be to return the product to Airfield Audio, where the defect will be repaired at no charge for parts and labor. All returns to Airfield Audio require a return authorization number and must be in original packaging, shipped to Airfield Audio via insured freight at the owner's expense. Charges for transportation costs and damage in transit are not covered by this warranty. The equipment will then be returned via prepaid, insured freight, method and carrier to be determined solely by Airfield Audio.

Airfield Audio Inc. is not responsible for damage from abuse or for any claim including but not limited to property damage, loss of revenue, incidental or consequential damage of any kind whatsoever which may result from failure of this product.

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MODEL _____ SERIAL # _____

PURCHASE DATE _____ SUPPLIER _____

OWNER _____

ADDRESS _____

EMAIL _____