



# LIMINATOR

CLASS A DUAL TRANSFORMER COMPRESSOR

OWNER'S MANUAL

*[www.airfielddaudio.com](http://www.airfielddaudio.com)*

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# INTRODUCTION

Thank you for choosing Airfield Audio.

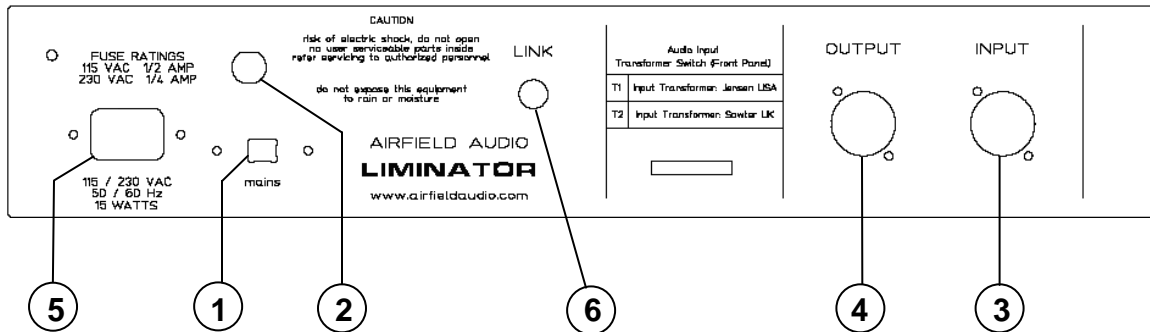
Our many years of specializing in tech service, custom build and modifications to high end studio and professional audio installations are now being expanded with an exciting new product line. For the Airfield Audio Liminator we have analyzed more than a dozen classic and vintage audio compressors, and 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. The best sound possible is realized with a complete reduction of cable-induced noise. And, in fact, a main feature of the Liminator is the inclusion of 2 switchable input transformers for a great range of flexibility and tone. 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 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, and with an additional unit, on stereo 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.

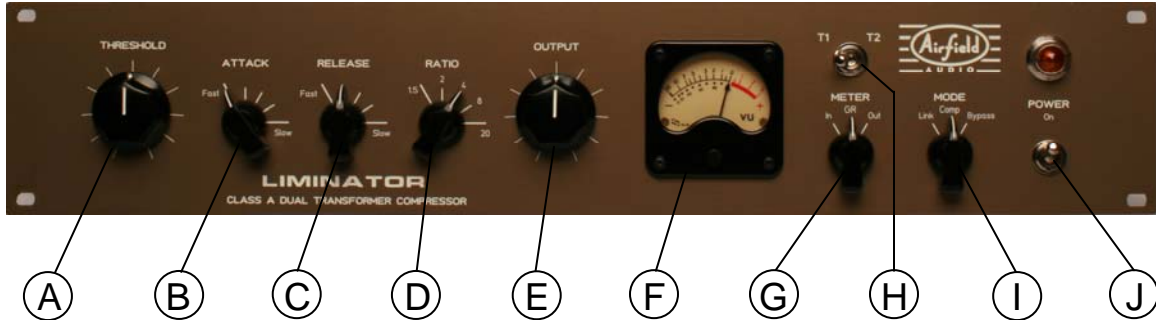
# INSTALLATION



## 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 a line level audio input cable from your source (microphone preamp, EQ, guitar or bass preamp / effects box, analog console or analog output from your DAW) to the 3 pin XLR / ¼" female connector. The input connector is Balanced Transformer Coupled, pin 2 hot.
4. Connect an audio output cable to the 3 pin XLR male connector and plug it into the input of your recording or mixing device. The output XLR is 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 between 2 Liminator units for stereo operation. Y-cables should be used in a daisy-chain configuration for multi-channel operation of 3 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 for 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. METER** Measures in decibels amount of gain reduction, input level, or output level, according to meter switch.
- G. METER SWITCH** 3 position rotary switch, select meter function: In (Input Level), GR (Gain Reduction), Out (Output Level).
- H. T1 / T2** Input transformer switch. T1 (Jensen) is very clean and transparent. T2 (Sowter) sounds richer with more harmonics.
- I. MODE** 3 position rotary switch, select Link, Compress, or Bypass
- J. POWER** Power is On when switched up. Amber bezel and meter will illuminate.

# OPERATION

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

Initial control settings:

1. Set METER switch to “In”, and MODE switch to “Bypass”.
2. Set THRESHOLD control off (fully counter clockwise).
3. Set OUTPUT control to unity gain position (12 o’clock noon).
4. Set ATTACK, RELEASE, and RATIO switches straight up (12 o’clock noon). The Liminator has been designed so that this position is a useful starting point. These switches can be adjusted to taste from this position.
5. Apply an analog line level signal from your source (microphone pre-amp, EQ, guitar or bass preamp, audio console or DAW). Adjust the output of the source to get a nice hot level coming into the Liminator. VU meter reading should average around 0 and up into the red zone.
6. Now, set METER switch to “GR” and set MODE switch to “Comp”.
7. Slowly turn up the THRESHOLD control, and observe gain reduction of signal on the VU meter. Normal gain reduction is 2 to 6dB. Higher RATIO settings will result in deeper compression.
8. While listening, adjust the OUTPUT control to maintain an appropriate level back into your signal path. To view the output level on the VU meter, set METER switch to “Out”. After “In” and “Out” levels have been checked it is recommended that the METER switch be normally left in “GR” position.
9. 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, vocal chorus and on the stereo mix and mastering.
10. 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.

- 11. 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.
- 12. T1 / T2 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. When using a pair of Liminator compressors linked for stereo operation, both channels should be set to same input transformer.
- 13. MODE.** Select Comp (compress) for normal unit operation, or Bypass (true relay bypass) for comparison between selected compression settings and the unprocessed signal.  
Link setting can be selected when 2 or more Liminator units are used together for stereo or multi-channel recording, mixing or mastering. The gain reduction control voltages are thus mixed, which stabilizes the sound-stage image and prevents drift between channels.  
For stereo or multi-channel operation, connect a ¼” Link cable or Y-cables between units (see page 3). Each channel’s controls will remain individually operational for compression settings, and are usually set identically.
- 14. Unbalanced operation.** The Airfield Audio Liminator 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 $\Omega$  with Transformer 1, Balanced, Pin 2 hot  
1.2K $\Omega$  with Transformer 2, Balanced, Pin 2 hot

**OUTPUT IMPEDANCE:** 75 $\Omega$  Balanced, Pin 2 hot

**FREQUENCY RESPONSE:**  $\pm$  0.25dB, 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, 4 dBu input level  
.1% THD at 24 dBu input level

**MAXIMUM OUTPUT:** + 32 dBu into 600 $\Omega$

**GAIN REDUCTION RANGE:** 0 ~ 20 dB

**ATTACK:** 5, 30, 60, 100, 150 milliseconds

**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)

**POWER REQUIREMENTS:** 15 watts, 115 / 230 VAC, 50 / 60Hz

**FUSE TYPE:** 3AG slo-blo, 1/2 Amp for 115 VAC mains, 1/4 Amp for 230 VAC mains

**DIMENSIONS:** 19" Rackmount 2U Chassis

**DEPTH:** 7" (180mm)


**WEIGHT:** 15 pounds (7 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 incandescent 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 \_\_\_\_\_