

Pass Laboratories

Aleph L Owner's Manual

The Aleph L is a single ended Class A audio preamplifier combining new design thought applied to traditional topology and the experience of twenty five years of amplifier design.

This preamplifier flows from a commitment to create the best sounding product: a simple circuit with the most natural characteristic. The Aleph L integrates discrete Mosfet gain devices and single ended Class A operation in a simple active/passive topology in order to deliver the most natural sound possible. The Aleph L absolutely minimizes the number of components in the signal path, and uses these only when necessary.

Unique to this preamp, patent pending, is a volume level control which combines the best qualities of a passive attenuator and active gain circuitry:

At the 3 o'clock volume control position, the Aleph L offers a direct path from input to output. The only component in the signal path is wire and switch contacts.

At positions below 3 o'clock, the volume control functions as a precision passive attenuator using discrete resistor ladders.

Above 3 o'clock, active gain is added to the output signal in 2 decibel increments, for a maximum of 10 dB.

As a result, you suffer the effects of active circuitry only when additional gain is necessary.

The Aleph L pushes the edge of the art in exploring how much subjective quality is obtainable with a new but very elementary gain stage. The real goal is subjectively realistic and natural sound, and the Aleph L achieves this without sacrificing objective measured performance.

A very few people are involved in the production of this product. I supervise all phases of the construction, and I test and listen to each preamplifier myself. If you have questions, comments, or problems, please feel free to contact me directly.

Thank you for purchasing this preamplifier. It is my sincere hope that you will enjoy its sound as much as I do.

Nelson Pass

Serial #

Date:

Next page: Distortion curve of your particular preamplifier at 1 kHz from .1 to 10 volts

The preamplifier has four sets of input connections, and two sets of output connections, an input selector and a level control. It also has an AC line power connection. The amplifier's voltage and current rating are indicated on the rear. It will be either 240 volts, 120 volts, or 100 volts. All are equipped with a 3AG slow blow fuse as indicated on the voltage sticker. The frequency rating of the power supply is 50 to 60 Hz. The preamplifier typically draws 10 watts during operation.

We have provided a standard AC power cord which fits into the line receptacle at the rear. The preamplifier is equipped for operation with an earth ground provided by the AC outlet. Do not defeat this ground. The chassis and circuit ground of the preamplifier is connected to earth through a power thermistor, which gives a ground connection but helps avoid ground loops.

The four input connections on the rear are pairs of RCA connectors with right and left channels indicated. Two pairs of parallel output connectors are provided.

The operation of the front panel input selector is straight forward. At the counter-clockwise position, the left-most input (1) is selected, and so on.

As stated in the introduction, the volume control system of the Aleph L is unique in that it combines passive operation at levels where gain is not needed, and brings in the active circuitry where gain is needed.

This is accomplished by a selector switch and a network of precision resistors which perform the required attachments and desired attenuation.

At the 3 o'clock position of the volume control, there is a straight path from the input to the output of the preamp, consisting only of silver soldered copper conductors and switch/connector contacts plated with silver and gold respectively. If you happen to be listening at this position of the volume control, the sound is as pure as you can get. The distortion and noise figures you will get at this position are not easily measured.

We find that most of the time, the 3 o'clock is louder than we want. Operating below that setting, the signal will pass through an attenuator comprised of discrete metal film (mil spec RN55D) resistors. The level is reduced by approximately 2 dB per step below 3 o'clock, with the tracking between the two channels held to about 0.1% tolerance.

As with the straight-through position, the distortion and noise figures below the 3 o'clock position are at the residual of our measuring equipment.

If you need gain, above the 3 o'clock position the volume control provides 2 dB of gain per step, for a maximum of 10 dB. In this region you will be listening to the active circuitry of the Aleph L.

As an interesting experiment, you may want to try listening to the difference between the straight-through position and the next higher one, seeing how well you can discern the character of the active gain system.

Given the unusual nature of the volume control, you may wonder about the input and output impedances of the Aleph L. As with the case of passive preamps which have no active circuitry, the answer depends on the associated equipment and the level setting.

To make the answer reasonably simple, we like to talk in terms of worst case settings, and then you'll know that the figures are usually better, but never worse than the quoted specifications.

With regards to input impedance, the Aleph L is a nominal 20 Kohms, in parallel with the power amplifier's input impedance. Using the Aleph L with an Aleph 3, for example, the worst case aggregate input impedance will be slightly greater than 10 Kohms. This figure occurs at the worst case position of 3 o'clock. As you move the level control in either direction away from this position, the aggregate input impedance will increase to a maximum of 20 Kohms.

With regards to output impedance, The answer depends on the output impedance of the source equipment and also the position of the volume control. At the 3 o'clock position, you are pretty much looking at the output impedance of the source. As you raise the level 3 steps from there, the output impedance will go through an increase to a maximum of about 700 ohms, and then with 2 more steps, back down to about 220 ohms at maximum level.

Below 3 o'clock, you will similarly see an increase to a maximum of about 300 ohms, declining to 0 ohms as you approach the bottom position.

Historically we have had a number of consumers concerned about input and output impedances of equipment, but from our experience the concern is largely unjustified.

From the standpoint of input impedance, I can only say that it is a very pitiful source that cannot come up with the 100 micro-amps of current needed to drive this input. I don't know of any tube circuit that doesn't bias to at least 100 times this amount.

The output impedance needs to be low enough to drive the capacitance of a reasonably long cable. How low does it need to be? I would say that it should be able to drive a 1000 pF load out to 100 KHz. The worst case output impedance of the Aleph L will drive 1000 pF with a -3dB rolloff at 225 KHz.

You may ask (go ahead, everybody else does), Is there a problem with high source impedances with low input impedances? The answer is: not with our circuits. The Mosfets we use do not depend on low source impedances for high performance, and the circuit topologies we use do not distort into low impedances.

With our circuits, you might see a slight reduction in gain reflecting such a match. I suggest clicking the volume control up another notch. Otherwise, relax already!

The Aleph L is warranted by Pass Laboratories to meet performance specifications for 3 years from date of manufacture. During that time, Pass Laboratories will provide free labor and parts at the manufacturing site. The warranty does not include damage due to misuse or abuse or modified products and also does not include consequential damage.

SPECIFICATIONS (volume control full clockwise)

Maximum Gain	10 dB
Freq. Response	+0, -1 dB @ 10 Hz and 100 kHz
Distortion	< .1 % THD
Maximum Output	15 volts rms
Maximum Input	5 volts rms
Output Impedance	250 ohms
Input Impedance	20 Kohm nominal
Power Consumption	10 watts
Dimensions	12 " W x 11.5 " D x 4" H
Shipping Weight	25 lb.



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