

# Liquid Gold<sup>®</sup> Balanced Differential Solid State Dynamic Headphone Amplifier



cavalli audio



# Congratulations! You're now the proud owner of the Cavalli Audio Liquid Gold® Solid State Headphone Amplifier!

## Amplifier Break-In

Most amplifiers need at least 150 hours of continuous use, playing music, to reach their full sound signatures. We recommend at least 200 hours for the Liquid Gold.

Your Liquid Gold® Amplifier has been playing music for at least \_\_\_\_\_ hours at near full volume. Confirmed by \_\_\_\_\_.

If this number is less than 200 hours we recommend that, when you're not listening, you leave the amp on continuously with your CD player in loop mode for enough hours to reach the 200 hour point. It is not necessary to leave headphones attached. In fact, **we recommend that you disconnect your headphones** when not listening during this break-in period.

At this point - and not before this point – will the amplifier reach the level of performance enabling you to accurately judge its sound quality and to determine whether it meets your critical listening standard.

**Before you judge the sound quality of the amp please follow this procedure!**

## Return Policy

You may return your Liquid Gold® amplifier within 30 days of delivery. Returning the amp within this time period will incur a 30% restocking fee.

## **Important points to remember about the Cavalli Audio Liquid Gold® Solid State headphone amplifier**

The Liquid Gold® is a fully differential, balanced solid state Solid State headphone amplifier. It is especially designed with very high power levels for today's hard-to-drive planar magnetic headphones, but it does well with almost any dynamic headphone. Its fully differential topology takes advantage of all the benefits of differential operation, including high common mode noise rejection. The differential circuit design of the Liquid Gold distinguishes it from some other balanced amplifiers which operate two separate channels connected together (bridged) at their outputs.

The amp has both single ended (RCA) and two fully balanced (XLR) stereo inputs. The input type is selectable with a 3-position front panel toggle switch. The single ended input has an internal solid state buffered phase splitter to create a balanced signal to drive the amp fully balanced.

The amp has two gain settings to help with the wide range of dynamic headphone impedances and sensitivities. The high gain is 8X and the low gain is 4X. The Liquid Gold® circuit allows you to hot switch the gain using the front panel toggle switch.

Liquid Gold® has 4 outputs: 4 Pin XLR, Pair (L/R) of 3 Pin XLR, and two TRS (standard ¼" phone plug). One of the TRS jacks (Low) has gain reduction resistors for situations where the headphone sensitivity is very high. These resistors should help in many instances of low impedance, high sensitivity headphones, but may not satisfy all conditions.

Power is controlled by a standby power circuit activated by a custom made Piezo power switch. Operation during power up is indicated by two LEDs below the power switch button. The power supply has a controlled startup sequence to protect the output devices and their drivers from high startup transient currents.

## Operation

Your Liquid Gold® amplifier has been operated for at least 50 hours for quality control and to give the components an opportunity to break in. However, most amplifiers don't fully settle, open up, and "relax" until they are played for at least 100 to 150 hours of operation. The Liquid Gold® also follows this timeline up to 200 hours (see page 3). Your new amp will continue to improve with regard to bass impact, more open sound, warmth, and "sweetness," so we strongly recommend that you accumulate these important hours on your Liquid Gold® Solid State headphone amplifier by playing it as much as possible so that you may fully enjoy its performance as soon as possible.

Your power inlet has been set for the voltage you specified.

- 1) Insert the power cord.
- 2) Flip the **standby switch** on the **power inlet at the rear of the amplifier**. The **power switch on the front panel should light white**.
- 3) Pushing the power switch turns the amp on (see notes below about "The Power Switch"). The white LED to the left and under the power switch will light red indicating that the amp is on. This LED is marked "W" for "Wait."
- 4) The power circuit will delay anywhere from 1-2 minutes depending on your line/mains voltage before enabling the outputs. When the first delay is finished the "W" LED will turn from red to white.
- 5) The second LED, labeled "H" for Headphones will light red.
- 6) During this time the various sensing circuits will wait until the DC offsets at the outputs have stabilized to the point where no damage to your headphones can occur.
- 7) When these sensing circuits are ready, the "H" LED will light white. At this point the amp is ready to use.
- 8) We recommend that you let the amp warm up for about 15-30 minutes before connecting headphones and listening (although this is not required).
- 9) You can leave the amp in standby mode (power switch lit) for any length of time.

### Important - Power Supply Internal Protection

The Liquid Gold's power supply has an automatic shutdown feature. The power supply monitors the line/mains voltage. If it drops too low for satisfactory operation of the amp the PS disconnects the headphones. When it does this the "H" LED will go from white to red indicating the disconnect.

If your amplifier regularly turns itself off under normal conditions this indicates a problem. Do not continue to cycle the power and please contact Cavalli Audio at support@cavalliaudio.com.

## Power Cycling

The power circuit in the Liquid Gold will not allow you to instantly turn the power off and then on again. ***If there is power interruption at the line/mains the Liquid Gold will turn off and stay off.*** This also protects the amplifier against rapid power glitches that can otherwise damage the electronics.

## Headphone Outputs

The Liquid Gold® Solid State Headphone Amplifier is equipped with one 4 Pin XLR output, two 3 Pin XLR outputs (Left/Right), and two TRS (Phone) jacks. The 3 Pin XLR and TRS jacks are contained in two combination jacks on the front panel.

### 4 Pin XLR

This jack supports headphones wired with a 4 Pin fully balanced connector. This jack is labeled above the jack with the letters “Bal.”

***CAUTION: do not connect headphones with a 4 Pin XLR which has a common ground (3 wire) connection to the headphones. This will absolutely damage the amplifier and void your warranty.***

### 3 Pin XLRs

Some headphones are equipped with two 3 Pin XLR connectors for independent left and right channel operation. These are labeled above the jacks as “Left” and “Right”.

### TRS Jacks

There are two TRS jacks combined into the 3 Pin XLR jacks (Neutrik combo jacks). These are labeled below the jacks as “Low” and “High”.

Jack High is connected directly to a single ended output of the Liquid Gold’s power section. Use this jack for headphones which need higher power.

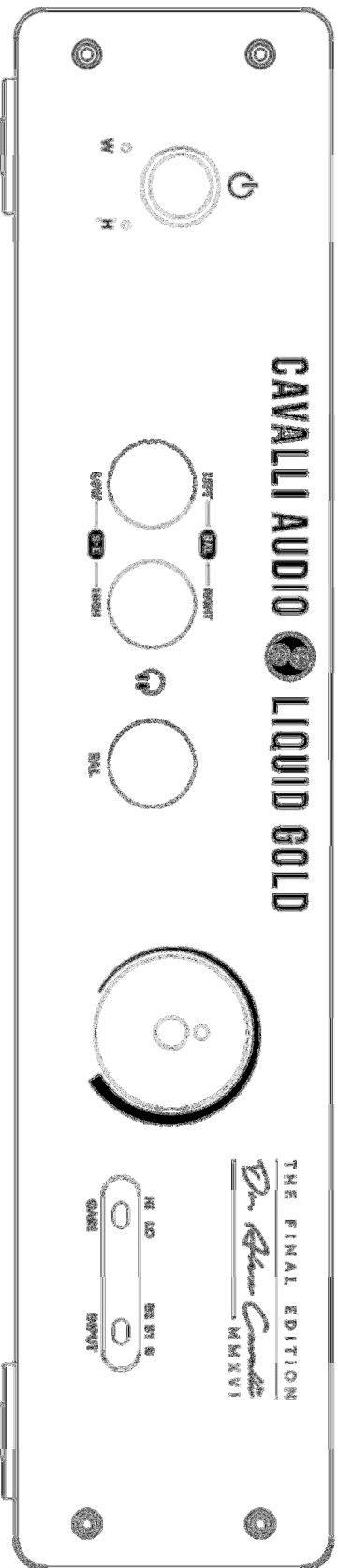
Jack Low is connected through a set of resistors to reduce noise/power output for sensitive headphones to the opposite single ended output. Use this jack if you have sensitive headphones and cannot get enough rotation on the volume control for useful operation.

## Recommended Mode of Operation

The Liquid Gold amplifier can run with singled ended input and single ended output or a combination of single ended and balanced. However, to get the best performance from this amplifier we recommend that you operate in fully balanced mode from input to output.

### Extended On Time (please read this)

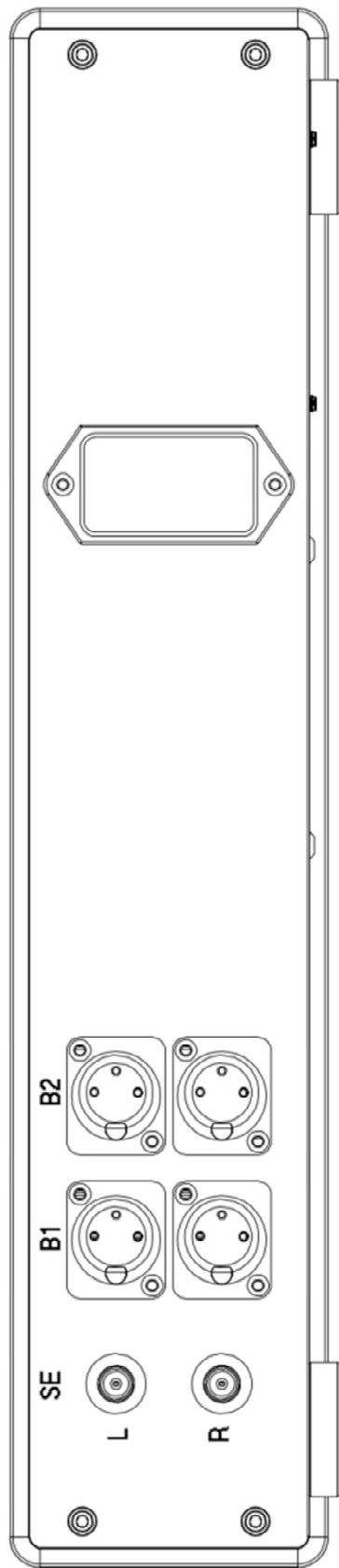
The Liquid Gold® amplifier will benefit from some warm up time, about a half hour to an hour. We ***do not recommend***, however, that you leave the amp on for extended periods of time when not listening. Leaving the amp constantly on will shorten component life and will not (after the initial break-in period) benefit the sonic character of the amp. We do not recommend, for example, turning the amp on Friday evening and turning it off Sunday evening if you plan on listening for only a few hours each day.



## Front Panel Controls and Jacks

This diagram shows the power switch on the left, the power on wait LED (W), the offset detector LED (H), the 4 Pin XLR Output Jack (Bal), the two Combo Jacks which provide 3 Pin XLR (Left, Right) and S-E (TRS Low/High) jacks. The gain switch (High/Low) and input selector switch (B2, B1, S) are on the right. TRS Jack Low is for low impedance, high sensitivity headphones.





## Rear Panel Jacks and Power Inlet

This diagram shows the input jack arrangement. The leftmost jack is the single ended RCA input, next is balanced input #1, then balanced input #2. Power inlet has a standby switch.

## The Front Panel Power Switch

Your Liquid Gold® Headphone Amplifier is equipped with a Piezo power switch. Piezo switches virtually never wear out from either mechanical or electrical failure. However, Piezo switches operate differently from mechanical switches and touch switches. The action of a Piezo switch is somewhere in between a touch switch and a mechanical switch.

Touch switches require only a touch to the sensitive surface of the switch to cause it to respond. Touch switches, obviously, are sensitive to nearly any kind of touch and will sometimes activate even when you don't want them to. A mechanical pushbutton switch requires that you cause the switch mechanism to make some amount of travel as you push it.

A Piezo switch is similar to a touch switch in that there is no detectable mechanical travel, but there must be some small deflection of the front face of the switch. Thus, a Piezo switch feels like a touch switch where you must apply some small amount of pressure to activate the switch. This pressure is low, but not zero. Take some time to understand and feel how your Piezo switch works and then it should operate without issues for the life of your amplifier.

## Ventilation

The Liquid Gold® dissipates close to 50W of power. It is very important that you ***DO NOT OBSTRUCT THE AIRFLOW AROUND THE AMPLIFIER***, especially from the bottom to the top and into the sides. Do not put anything on the top of the amp that blocks ventilation holes. Do not put the amp on a surface that might block ventilation or reduce airflow from the bottom. Do not restrict the airspace around the amplifier. ***Leave at least 10" at the top and 3" at the sides if possible.*** The top cover of the amp will run hot and the volume knob will be warm!!

## **What about those tweaky things like cables, power cords, better feet and such that I've heard so much about?**

Everyone has an opinion on this one, and we can say without a doubt that at this level of performance *every* change makes a difference. The extent to which this change is an *improvement* is, of course, the subject of much debate. Such is the nature of high-performance audio.

One of our closely-held opinions with regard to the entire matter of “What makes ‘better sound’ better?” can be summed up in a few short words – “if the musical result of the change MOVES YOU, then it is worth considering. If not, spend those discretionary funds obtaining more of your favorite music!”

OK, so now comes that time when we require you to read some verbiage written in legalese. If you understand all of it, you're probably an attorney. If you don't understand all of it, you're one of the rest of us who doesn't like reading this any more than we like requiring that you read it....but here it is.....

## Warranty

This Cavalli Audio product has a 1-Year warranty for parts and labor. Tubes are warranted for 90 days. Warranty does not include fully insured shipping costs to Cavalli Audio. Warranties are not transferable unless pre-authorized in writing by Cavalli Audio. If the repair is due to customer damage or negligence, repairs will be charged as parts and labor, which will be quoted before work is performed. **For warranty support please contact [support@cavalliaudio.com](mailto:support@cavalliaudio.com) or, if purchased from one of our authorized retail outlets, please contact the authorized retailer from whom you purchased it.**

Any modifications to this product which have not received written factory approval nullify all claims and void the warranty. Should a modified product be returned to the factory for repair the owner will be required to pay all necessary charges for the repair in addition to those charges required to return the product to its original configuration.

Removal or alteration of original Cavalli Audio serial numbers voids the factory warranty. **Product with altered or missing serial numbers will be considered counterfeit product.** Cavalli Audio will not repair or in any way indemnify any counterfeit or cloned product.

Now that you've read all that, and we assume that you have, in fact, read the above essential verbiage, we're hoping and trusting that you have found reading this owner's document to have been both useful and entertaining; enhancing your ability to enjoy your Cavalli Audio Liquid Gold headphone amplifier. Now, GET BACK TO ENJOYING YOUR MUSIC!

## Standard Warranty Limitations

EXCEPT FOR THE EXPRESS WARRANTIES STATED HEREIN, CAVALLI AUDIO MAKES NO OTHER REPRESENTATIONS OR WARRANTIES AND CAVALLI AUDIO HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, FITNESS FOR A PARTICULAR PURPOSE, PERFORMANCE, SATISFACTORY QUALITY, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE. IN ADDITION, CAVALLI AUDIO DOES NOT WARRANT THAT THE PRODUCT WILL SATISFY YOUR REQUIREMENTS, IS WITHOUT DEFECT OR ERROR, OR THAT THE OPERATION OF THE PRODUCT WILL BE UNINTERRUPTED. BECAUSE IT MAY NOT BE POSSIBLE FOR CAVALLI AUDIO TO KNOW THE EXACT PURPOSES FOR WHICH CUSTOMER ACQUIRED THIS PRODUCT, CUSTOMER ASSUMES FULL RESPONSIBILITY FOR CUSTOMERS INSTALLATION, USE AND THE RESULTS OF THAT USE.

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If you have any questions or comments, please contact us at [sales@cavalliaudio.com](mailto:sales@cavalliaudio.com) or at [info@cavalliaudio.com](mailto:info@cavalliaudio.com). We look forward to hearing from you!

## For Your Protection

**Ventilation:** In order to improve sound quality, your Liquid Gold amplifier runs **warm** and thus requires free air circulation of **at least 10" at the top and 6" at the sides** of the product. Never place the amplifier in an enclosed space with restricted air flow. Never place it near another source of heat. Excessive heat **will** shorten the life of the product.

**Water and moisture:** **NEVER** use the Liquid Gold amplifier near water. **NEVER** handle the amplifier while in contact with water. **NEVER** let the amplifier come into contact with water. **NEVER** spill water or other liquids into it.

**Power Sources:** Make sure that the voltage/frequency stated on the back label on your amplifier is compatible the line/mains voltage in your location.

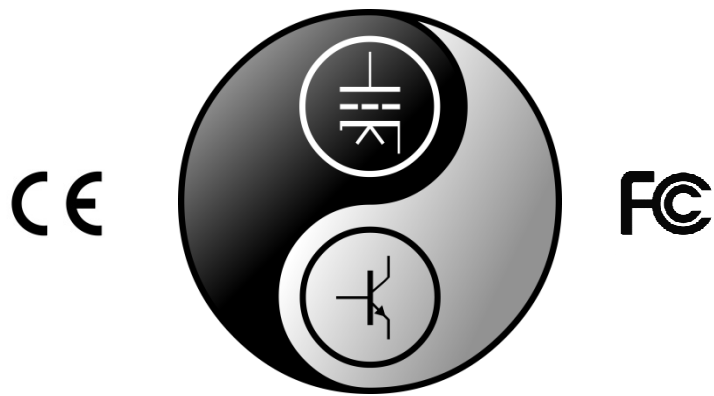
**Grounding:** The electrical ground in this amplifier is an important safety feature. **Do not defeat ground with special plugs, power cords, etc. Doing so will void your warranty.**

**Power Cords:** If you use your own power cord, use one that meets the standards of your location.

**Power and Signal:** Cables should never be connected or disconnected with equipment powered up. Failure to heed this warning may damage or destroy equipment.

**Servicing:** To reduce the risk of fire, electrical shock or other injuries, the user should not attempt to service the amplifier beyond what is described in this manual. All other servicing must be referred to **authorized** service personnel.





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