

Owner's Manual



Herron Audio

M1

*Solid State
Power Amplifier*

Herron Audio M1 Solid State Monaural Power Amplifier

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The Amplifier

The M1 is a full complementary symmetry bipolar implementation and contains no coupling capacitors in the forward direction. It employs the latest technology in wide band output devices with enhanced low level linearity. Proper stage-to-stage impedance matching insures extraordinarily low distortion and unique successive stage to output confluence provides a seamless combination of micro/nano-resolution from forward stages and robust controlled power and authority from successive stages. This unified current summation drive stage network eliminates the crossover notch problems common in many solid state amplifier designs. High idle current or class A bias output stage operation is not necessary! The M1 runs cool under most listening conditions and provides a live presentation with none of the hardness normally associated

with solid state amplifiers. The output network of this amplifier is resonance free and remains stable even with a 1 micro-Farad capacitor connected across the output terminals. The M1 engenders the fine resolution and liquidity normally associated with tube amplification plus the power and bass control of solid state. Individual voices remain distinct and clear amidst the crescendo full orchestra and chorus. The sound of the M1 is pure and true to the source. It has the clarity, focus in time, and natural sound inherent in all Herron Audio products.

DC Response

The M1 incorporates automatic low level d.c. offset cancellation plus high level d.c. shutdown speaker protection circuits. The effects of continuous low level d.c. at the input of the M1 will be nulled out over time and higher levels of d.c. at the input will engage the shutdown protection.

Please read the Owner's Manual completely BEFORE operating the unit.

Important Note: Due to the ability of the M1 to amplify d.c. for short periods of time, the d.c. speaker protection shutdown circuits may activate for a brief time shortly after the line stage preamp or other input source device has been turned on. If d.c. persists at the inputs of the M1 the output of the amplifier will remain off and the voltage light will blink on and off until the d.c. is at a low enough level for safe operation. This condition is normally temporary and lasts until the capacitors have fully charged in the input device. The amplifier will then restart automatically. We generally recommend that the front end equipment be started ahead of the power amplifiers, although no harm will come from a d.c. protection shutdown sequence.

Break-in Time

Anytime the M1 has been shipped or transported for more than a few miles it is highly recommended that the unit be re-broken-in. Completion of the break-in process makes a significant improvement in the sound quality of the unit. Break-in time after shipping is generally 72 hours of running with music.

The M1 has been equipped with an auto-break-in circuit that runs the bias of the amplifier at an increased level just after the unit has been turned on. Operation of this feature is indicated by two orange lights (visible through the top of the unit). The unit will remain in the auto-break-in mode until the heat sink temperature has reached approximately 124 degrees Fahrenheit. The length of time that this takes will vary from a few minutes to several minutes depending on several variables including: room temperature, unit temperature, line voltage, etc.. The auto-break-in mode can be manually initiated or interrupted by pushing the red button located near the red output connector on the back of the unit. The use of the auto-break-in mode will help accelerate the break-in process and warm up the amplifier during normal use.

NOTE: operation of the auto-break-in circuit may cause the amplifier to temporarily trip off under certain operating conditions of voltage and temperature.

Front Panel Features



The front panel has three indicator lights for easily monitored operational readiness of the unit. The first light is the “power” indicator. This indicates that power has been turned on. The “voltage” light indicates that the amplifier circuitry has been activated.

Upon shutdown the amplifier is deactivated at the same instant that the output relay is opened. This prevents contact wear and contamination from arcing which is common in conventional designs. The approach used in the M1 prolongs the life and sound quality of the relay.

A blinking “voltage” light indicates that there is d.c. present at the input of the amplifier. The blue “output” light indicates that the output relay is engaged and the M1 is ready for listening. If the M1 is overheated (78 degrees Centigrade), the “output” light and the “voltage” light will turn off (amplifier deactivated) until the heat sink cools 10 degrees Centigrade. Two red “over temperature” LEDs will be visible through the top of the unit. The normal start-up sequence of the unit is designed to run a self check and accelerate the warm up/break-in process.

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Rear Panel Features



The rear panel was designed for flexibility and ease of access to less frequently used functions. The high precision RCA input jack and output connectors are gold plated to minimize signal degrading corrosion.

Power Connection

An IEC power cord connector is provided for attaching the Herron Audio-provided power cord or another chosen by the user.

Power Switch

When placed in the on position, the unit is powered up. At power up, the unit goes through a start-up sequence and remains muted until the output light comes on. When the switch is moved to the off position the unit is automatically muted and powered down.

Output Terminals

The M1 has two gold-plated Tiff speaker binding post terminals. These terminals are labeled with the designation "OUTPUTS" on the rear panel of the unit. The polarity is designated with red and black insulating collars. The red collar signifies the positive terminal. The M1 is non inverting. Connection to the speaker binding post terminals should only be made while the unit is powered down.

Red Push Button

The red push button located between the red output terminal and the heat sink can be used to initiate or interrupt the high bias auto-break-in mode of the M1. The auto-break-in mode is automatically initiated when the amplifier is first powered up and will automatically shift to normal bias mode when the heat sink reaches approximately 124 degrees Fahrenheit. Operation of the auto-break-in mode is indicated by two orange lights that are visible through the top of the unit.

NOTE: Initiating the auto-break-in mode when the amplifier is hot may cause the unit to temporarily trip off.

Heat Sink

The heat sink on the back panel of the M1 is designed to dissipate heat generated by the output section of the amplifier. For best performance and long life the unit should be used in a well ventilated area. Excessive heating may occur under heavy load conditions in a poorly ventilated location and could cause the unit to shut down.

Input Connector

The M1 has one gold-plated RCA input connector. The RCA input plugs (interconnect terminations) should be inserted firmly into the input jack while the unit is powered down. It is not recommended that the unit be powered on without an input connection.

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Installation

Placement

Although the M1 power amplifier runs relatively cool, it is recommended that these amplifiers are used in an open area for best operation and prolonged life.

Each M1 contains an oversized toroid transformer wound in a configuration designed for minimum magnetic field radiation. It is recommended, however, that the M1s be placed at least a few feet away from sensitive front end equipment such as a turntable or phono stage.

Power Connection

When possible, connect the same power outlet used for the preamp, phono stage, CD player, etc. This configuration will minimize the reactive currents from power line RF that will be impinged on the interconnect cables between the audio equipment in the system.

Recommended Loading

We do not recommend using the M1 with a 2 ohm load. As with all audio amplifiers increasing the load will increase the distortion and defeat the purpose of having a really clean amplifier such as the M1. For this reason we did not design the M1 to drive a 2 ohm load to full power. The over-current trip circuits will engage under those operating conditions.

Speaker Cable

Optimum performance from the M1 will be obtained only with careful selection of the appropriate cables from the amplifier to the speakers. Minimum capacitance and inductance is preferred in order to avoid over-shoot and ringing in the cables. Here, simple high quality cable is of utmost importance.

Troubleshooting

Symptom

1. The output light is on (blue) and there is no sound.
 - A. Check speaker terminations
 - B. Check the interconnect terminations at the M1 and at the preamplifier.
 - C. Check the source equipment.

2. The power light is on, but the voltage light goes on and off and the output light does not come on. No Sound.
 - A. Check input source for d.c. at its output. **Note:** It is not uncommon for preamplifiers and other audio source equipment to produce a d.c. offset for a short period of time after being powered up. This condition will normally clear up after a few minutes. It is recommended that the M1s be powered up after the preamplifier, phono stage, CD player, etc. have been turned on.

3. The amplifier trips off while the output light and voltage light periodically go out (the sound is interrupted) when listening at high volume.
 - A. This condition occurs when the internal protection circuits detect an over-current condition.

4. The amplifier trips off and the output and voltage lights turn off. This condition indicates that the output section of the amplifier has over-heated (78 degrees centigrade). Make sure that the unit is adequately ventilated. The unit will

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Troubleshooting—cont'd

turn back on automatically when the heat sink has cooled to 68 degrees centigrade.

Two red LEDS (visible through the top cover) indicate an even temperature condition.

5. The power light comes on but the voltage light never comes on.
 - A. The M1 contains two AGC 6 amp internal rail fuses (F2 and F3) located on the p.c. board for circuit protection. In the unlikely event of a failure of one or both of these fuses, red indicator lights will be visible through the vents in the top of the unit.

M1 Technical Specifications

Configuration	Single-channel (monaural)
Frequency response	20 to 20kHz +/-0.1dB
Output Power	150 Watts @ 8 ohms, 275 Watts @ 4 ohms (measurements at 1 kHz)
Gain	24 dB
Input Impedance	220k Ohms
Absolute Polarity	Non-inverting
Power Requirements	100, 120, 230, 240 VAC. 50/60 Hz. Standard IEC power connector Toroidal transformer taps internally selected for appropriate voltage
Main(s) Fuse	120 VAC - MDL5 230 VAC - MDL3
Dimensions	19" wide x 4" high x 10.5" deep
Warranty	3 years, parts and labor

Manufactured by *Herron Audio* Division of Herron Engineering, Inc.
St. Louis, Missouri

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