AUDIOPAX

MODEL 88

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Introduction

Thank you for choosing **Audiopax Model M88**, our acclaimed 30W per channel single-ended (class a1) amplifier that has been described as "*a legend in its own time*". It is not only a beautifully crafted piece of art using the best possible audio components - but also one of the most innovative pieces of equipment on the market, with several unique features and topology so revolutionary among tube amplifiers that it is probably the only major innovation in this category in recent decades. It is a piece of recognized equipment worldwide, with numerous international awards and enthusiastic reviews, being a reference for amplifiers worldwide.

Each component used in your **Model 88** was carefully selected for maximum performance and the synergy among the components is taken into account - a perfect balance between specific qualities and their overall effect is a key point to achieve its unique sound. This includes not only the choice of the electronic parts (resistors, capacitors, inductors, wiring, sockets, connectors, etc.) but also several innovations in the fields of electromagnetic interference canceling and vibration control. As a good example, **Audiopax** is one of the few companies in the audio market that uses coupling capacitors developed specifically for their equipment, in a successful association with the Jupiter Condenser, one of the main brands specialized in it. **Model 88** is also one of the rare pieces of equipment that uses brass as the main material for its chassis (a material that is much more expensive than aluminum or steel), something that due to its diamagnetic characteristics, has the capacity to generate inverted magnetic fields at its interior that can cancel external ones.

Besides all the care and craftmanship used in its components, **Model 88** has several exclusive technologies, as described below.

Timbre Lock®

Simply placed, it is an "adjustment to the smallest perceived distortion of the system as a whole". At its inception, for the first time the design of an amplifier "sacrificed" equipment measurements to prioritize the listener's real perception by taking advantage of the predictability of distortion patterns, achieving the highest possible rate of cancellation between distortions generated by an amplifier with those generated by the speakers. **Timbre Lock®** won the top award from Hi-Fi News, England's most traditional audiophile magazine, the **Industry Award 2003 for Best Valve Amplifier Innovation**, and was described by it as "*a great application that works; simply and simply.* "

IDS ("Ideal Device Simulator")

The idea of the **IDS** came about from the desire to get the same "magic" of 300B with other devices. This was made possible by the creation of a new topology (named LM3 - **L**ow **M**u **T**riode with **H**igher **R**aw **E**fficiency **E**mulator), where the interaction between different tubes and the output transformers allowed the perfect emulation of the known qualities of that unique tube. With the success of this implementation an even more challenging idea arose: if it is possible to emulate a specific tube why not to emulate an "ideal" one - a device that didn't exist but that would add all the magic of the 300B, the dynamics of the 845/211, the transparency of 2A3, the perfect tone of 45 and (why not?) the best features of solid-state devices. This challenge was achieved successfully with the **IDS**, which makes **Model 88** the only single-ended tube amp that utilizes a dream tube never produced before - an "*Ideal Audio Triode*", whose behavior has been carefully designed by **Audiopax** itself. It is, therefore, one of the only amplifiers on the market that simultaneously adds the best characteristics of the tube amplifiers (musicality, no distortion in odd harmonics, a "magic" and "warm" middle region, dynamic distortion spectrum for power and frequency similar to that of a mid-range speaker - allowing for greater statistical cancellations, etc.) to the best solid-state characteristics (long and fast transient and frequency response, sweeping dynamics, very low noise, etc.).

ASTAT ("Asymmetrical Series Twin Amplifier Topology")

It is the carefully controlled combination of slightly different output transformers connected in series and powered by independent and entirely unpowered sources, meaning that each **Model 88** monoblock is actually composed of two complete, independent and asymmetrical amplifiers. The concept is unique in the audio market and allows for maximum flexibility in circuit design, creating a radically innovative form of music reproduction. Furthermore, it is a concept that has been successfully used in many other fields: the stability of a helicopter, for example, is achieved by devices that generate asymmetric forces. The **ASTAT** concept makes **Model 88** one of the rare single-ended class a1 tube amplifiers to reach its power range reliably and stably.

Installation

Your **Model 88** is shipped in two boxes containing:

- Two monoblocks (one for each channel)
- Two tube quartets (each with two input and two power tubes)
- Extra fuses

Your manual is available for download from our website: *www.audiopax.com.*

The monoblocks should be installed in an airy area, avoiding enclosed spaces (such as cabinets) and maintaining an empty surface of at least 30 cm above them. As your on/off switch is located at the rear of the equipment, it is also important that this space is easily accessible. It achieves optimal operating conditions within 30 minutes and should be turned off whenever long periods until the next listening session may occur (this recommendation is made to extend the life of your tubes). For the best sound, we advise you to also install it in a location free of excess bass, avoiding interference and feedback in your tubes (as room corners).

With the monoblock already in its final position, it is now necessary to install the tubes, which will only fit in its correct position. For the 12AT7 (input tubes), you just have to match the biggest distance between their pins with the same space at the sockets. For the KT88s (power tubes), you just have to match the guide plastic pin below it with the hole at the sockets. Once the correct position is reached, gently press each tube until its base fully touches the socket and they are 100% perpendicular to the chassis.

Without connecting the AC cable, make sure that the "*Power On/Off*" switch on the rear of each one of the amplifiers is in their "*Off*" position. Connect the signal input RCA cables (black/white: left channel; red: right channel), the speaker cables to the appropriate binding posts (taking care to put both with the same polarities). Finally connect the power cord to the IEC connector, respecting the nominal voltage of your **Model 88** (120V or 230V).

Turning on your Model 88

On its top panel, **Model 88** has two potentiometers surrounded by LED rings and two toggle switches over them. These potentiometers are the **Timbre Lock®** adjustments, one of the truly unique features of **Audiopax** products. Before turning on the equipment for the first time, set all adjustments (two on each monoblock) to their minimum position, ie fully counterclockwise.

Locate the Power switch on the back of the amplifier and turn it on (up position) without any music playing, that is, with no sound at all. To protect the tubes by ensuring their filaments are properly preheated, **Model 88** uses an internal timer that only releases its operation after approximately 30 seconds (you may then hear a small click from an internal relay). When this occurs, wait another minute and turn the switches over the **Timbre Lock®** potentiometers, slowly adjusting them clockwise until the yellow led corresponding to each control is reached. Then, the switch must be switched back to the “Off” position. After this initial set, you can finally start to listen to music.

The ***Timbre Lock®***

The **Timbre Lock®** is an **Audiopax** invention that allows the best possible match of the distortion behavior of their amplifiers with any of their speakers, resulting in the best distortion spectrum for the system as a whole (we can consider it as an "adjustment to the lowest system distortion"). At its inception, for the first time the design of an amplifier "sacrifices" the traditional concepts of measurements to prioritize the listener's real perception. From the standpoint of distortion, which is usually the weakest parameter in a speaker, it is also a setting that lets it achieve the maximum of its performance. **Timbre Lock®** won the top award from **Hi-Fi News**, England's most traditional audiophile magazine, the **Industry Award 2003 for Best Valve Amplifier Innovation**, where it was described as a "*genius application that works; quite simply*".

Timbre Lock® sound effects do not operate in the frequency domain, like conventional tone controls, but rather optimize the residual harmonic distortion spectrum between the amplifier and the speakers. This unique adaptability allows you to control this critical interface of an audio system and thereby adjust instrumental tones, micro-dynamics, general definition, bass impact and articulation, even the emotional involvement factors and musicians 'presence' in your listening room.

Each system is different, as well as each listener has different musical values, sensibilities, and preferences and all of these variables define the best **Timbre Lock®** adjustment for you. The fact is that, when you get it right, things clearly stay in place. Your musical appreciation and involvement will intensify and reach a higher level. But as it is simply impossible to predict what your ideal configuration will be, we can only give you a rough idea of how to adjust it, as you will see below.

An important note: The **Timbre Lock®** adjustment should always be done without the amplifier playing music, that is, it must be without signal at its input.

The left control of the **Timbre Lock®** at each one of the **Model 88** monoblocks usually gives you the impression of changes at the bass articulation and attack, especially with high-efficiency loudspeakers. Turning its potentiometer counterclockwise (first or second LED) makes the overall sound drier while turning it clockwise can appear to reduce impact, attack, and internal detail after the fifth LED. Between these two positions, you will soon realize the effects on the overall presentation until getting the best position for the right amount of warmth, presence, and resolution. You could thus think of the left control as a "definition control". So, generally speaking, in a correct **Timbre Lock®** setting, this will ends with one of the first five of the LEDs turned on.

The right control of the **Timbre Lock®** at each one of the **Model 88** monoblocks usually gives you the impression that it affects the overall smoothness and tone. Again, going counterclockwise the sound turns progressively lighter and drier and clockwise it becomes softer and warmer. Moving this position away from the ideal setting in the clockwise direction will make the sound fuzzier and less rich, in the same way, moving it away from the ideal setting in the counterclockwise direction it will make it bodyless, empty. Think of this control as "sound density".

Besides the left/right potentiometers adjustments, that gives you a kind of a dial to get the best balance between warmer (but softer), when you go to clockwise direction, and clearer (but drier), when you go counterclockwise, you can also get new nuances changing the offset between the two adjustments, that is, depending the amount of LEDs positions you have between the left and right adjustments in a single monoblock. This affects different qualities simultaneously, the perceived final extent of the high frequencies against the mid-range attack, the mid-range brightness rather than too much internal detail and transparency, emotion rather than extreme resolution. Usually, the ideal range of this difference goes from 1 to 3 LEDs (bigger values may interfere with the overall perception of the sound image) and selecting the appropriate difference for your system is often more important than the absolute position of each one of the controls.

In **Model 88** the yellow LEDs define the preferred starting position for the adjustments. As it also has enough adjustment range to work with any brand of tubes and even to get more from aged tubes (you certainly will always get the most of it with these amplifiers), **Model 88** has red LEDs that are a clear indication that you are approaching dangerous presets regarding your tube's life. So, they should never be used as a preset position.

We recommend that when you first turn on the amplifier, you adjust the **Timbre Lock®** after a few minutes and again after about 20 minutes of power on. You should first try to familiarize yourself with the effects of **Timbre Lock®** and then look for the

most pleasant configuration for your system and yourself. It is there to optimize the musical engagement factor of your system - a truly new concept that is much more refined and therefore ultimately more powerful than tone controls. With careful setting, **Timbre Lock®** can deliver a unique experience and connect you closely with the thrill of your favorite musicians' performance.

Please be aware that any "not ideal position" for the **Timbre Lock®** is, in reality, the "normal" situation for almost every system, out of some very rare combinations that are usually described as "these amps and speakers have a wonderful synergy". With the **Model 88,** this "synergy" is always in your hands - think about that!

Model 88 as an inverter amplifier

Model 88 is a phase inversion amplifier and, depending on the other components of your system, perhaps the best sound result will occur with the normal phase. In this case, reverse the phase in any component containing this feature or at the speakers' cables, inverting on both channels the polarity of one of the ends (amplifiers or speakers) to achieve the best possible performance.

Specifications

Maximum power:	30Watts RMS per channel at 1kHz, 4 or 8 ohms
Frequency Response:	14Hz to 100kHz (-3dB)
Signal to Noise Ratio:	Better than 90dB, (A-weighted) ref. 30W
Gain:	18dB
Input Impedance:	220K Ω
Output Impedance:	3.7 Ω
Absolute signal polarity:	Inverted
Input Voltage:	120V or 230V (+- 5%)
Max. Power Consumption:	110W
Fuses:	4A (120V) or 2.5A (230V), slow, 6.3mm (main) 250mA to 500mA, fast, 6.3mm (output tubes)
Monoblock dimensions:	20cm (W) x 38cm (D) x 31cm (H)
Net Weight:	18 Kg
Finishes:	Chassis: Chrome Sides/Bases: Black Piano or Bordeaux
Optional:	Transformer balanced input

Support

Model 88's circuits and transformers are designed to deliver the best possible sound performance with extremely conservative bias, temperature, and overall operating parameters for its tubes and parts, resulting in a piece of extremely reliable equipment with a very long tube life. However, if you have any problems, check the list below initially - possibly it can be solved using this simple checklist.

- **Problem: The amplifier does not turn on**
  - *Possible solutions*
    - With the equipment turned off check
      - The AC cable connection
      - The main fuse

- **Problem: No sound**
  - *Possible solutions*
    - Check the interconnect and loudspeaker cables connection
    - Check sound source (especially selection, volume and mute control at the preamplifier)
    - With the equipment turned off, check the main fuse

- **Problem: Distorted sound**
  - *Possible solutions*
    - Reverse the interconnect and speaker cables between channels to verify if the problem is from the source or from the loudspeakers
    - With the equipment turned off, check the tube fuses (please avoid touching the metal parts of it, that can be charged even after the power off of the amplifier)
    - Verify all **Timbre Lock®** controls operations and check the tube fuses in case of any problems.
    - Try to exchange the tubes between the two internal amplifiers of each monoblock (initially, try to exchange all of it and then each one separately - input or power)

- **Problem: Abnormal fluctuation of Timbre Lock® LEDs**
  - *Possible solutions*
    - Swap the tubes between channels to check if the problem is in one of them
    - Check if you are having any AC fluctuation at this moment (something that can affect the **Timbre Lock®** measurement