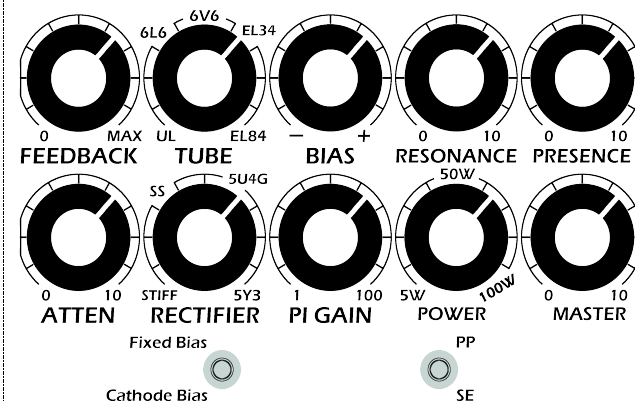# AXiom
POWER AMP EMULATOR PAE-2
USER'S MANUAL

www.AXiomEffects.com

AXiom Power Amp Emulator PAE-2

The AXiom Power Amp Emulator PAE-2 is a 100% analog pedal that recreates the dynamic behavior of tube power amps. The PAE-2 features internal phase-inverter circuitry, adjustable negative FEEDBACK, PRESENCE and RESONANCE controls, a POWER control that adjusts the behavior from that of a 5W amp to 100W amp, a TUBE control that emulates the characteristics of different power tubes, a RECTIFIER control that mimics the power supply sag of different rectifier types, a BIAS control that adjusts tube bias from cold to hot, and it can be configured as single-ended or push-pull, fixed or cathode biased.

The PAE-2 can go from Class A clarity to the bite of Class AB, from the stiffness and immediacy of an ultra-linear power amp to the compression and bloom of EL84s, and from the tightness and full bass of fixed bias amps to the compressed, softer dynamics of cathode biased amps. Use it to give your solid-state amp the feel and crunch of a tube head or make a tube head sound cranked at low volumes.

FEEDBACK: Increases the internal negative feedback level as the knob is turned clockwise (CW). This increases clean headroom and reduces distortion and compression.

TUBE: Reproduces the headroom and compression characteristics of different power tubes from an *UL*tra-linear configuration to EL84s.

BIAS: Emulates cold (-) to hot (+) power tube bias. Biasing too cold in Push-Pull configuration will result in crossover distortion.

RESONANCE: Increases bass frequencies and "resonance" around the speaker cabinet's resonant frequency range.

PRESENCE: Increases treble frequencies.

The PRESENCE and RESONANCE controls are based on the internal feedback line the same as in actual power amps and they behave the same way. With no feedback they do nothing and become more effective as feedback is increased. Also, when the PAE-2 is clipping hard the feedback signal "collapses" and these controls have no effect.

ATTEN: Decreases (i.e. ATTENuates) output volume as the knob is turned CW.

RECTIFIER: Mimics the power supply sag and headroom compression of different rectifier types - from completely stiff to an ultra-saggy 5Y3 tube.

PI GAIN: Increases "phase inverter" gain as the knob is turned CW. Fully counter-CW corresponds to a single-ended amp with a driver gain of 1. Fully CW mimics a 12AX7 long-tailed pair with maximum gain.

MASTER: Adjusts the signal level into the internal phase inverter/driver.

POWER: Adjusts the power amp emulation from 5W to 100W. This increases clean headroom and reduces distortion and compression as the knob is turned CW.

Fixed Bias/Cathode Bias: Sets the power tube bias type.

Push-Pull/Single-Ended (PP/SE): Sets the PAE-2 to either push-pull or single-ended configuration.

FLYBACK (internal trim pot): Increases the amount of transformer/speaker flyback voltage interaction as the pot is adjusted CW. In the fully counter-CW position there is no flyback effect (like a solid-state amp or purely resistive attenuator). Flyback makes the distorted sound brighter, with more pick attack.

CAB (internal dip switch settings):

 No cabinet resonance (resistive load)

 Open-back speaker cab (dirty power amp)

 Closed-back speaker cab (dirty power amp)

 Open-back speaker cab (clean power amp)

 Closed-back speaker cab (clean power amp)

Other DIP switch settings don't correspond to any real-world rig... but that doesn't mean you won't find something you like.

DIMENSIONS:	**Height 3.75", Width 5.13", Depth 1.94", 1 lb**
INPUT IMPEDANCE:	**1 MOhm**
CURRENT DRAW:	**43 mA** (maximum)