

Studio Projects **VTB1**

Single-Channel Tube Blend Mic Preamp.

Circuit Topology:

Mic Preamp:

Discreet, current-source fed, paralleled-transistor balanced input stage feeding a bipolar opamp balanced-unbalanced converter. Dual feedback design for low distortion performance. 2-Stage design for increased performance; transistor stage provides up to 45dB gain, 2nd stage contributes up to 15dB gain.

Line Input:

FET-input opamp buffer with hi input impedance to avoid pickup loading when used as an instrument preamp. 2nd stage provides adjustable gain from 10dB to 30dB, constant hi-impedance is maintained.

Hi-pass filter:

75Hz hi-pass filter for low-freq wind and rumble elimination (3-pole filter @-18dB/oct).

Tube Blend:

Constant-level blend control allows the user to smoothly change from an all solid-state path to a tube-based preamp. This allows the user to add the desired amount of tube sound to the signal without having to deal with complicated "tube drive" controls and such. Alternately, it allows the user to use only the solid-state portion of the preamp to get a very low distortion, un-colored sound when desired.

Tube Stage:

12AX7 vacuum tube with DC filament supply for minimum hum and noise. 1st half of tube is operated as a hi-gain amplifier stage, 2nd half operates as a cathode follower to minimize loading of the first stage. A low-voltage plate supply is used to create a "starved-tube" condition for enhanced sound.

Output Stage:

Bipolar, lo-noise, hi output-current opamp used for best performance. 1st stage is used to provide additional gain (6dB) and drives the Line out jack and Pin-2 of the balanced out. The 2nd stage provides signal inversion and drive for Pin-3 of the balanced output (effectively an additional 6dB gain).