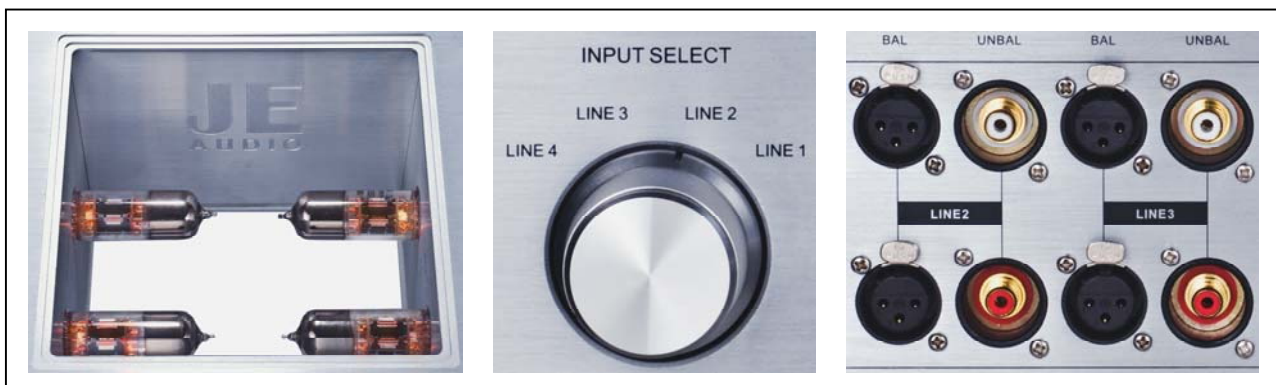


# Vacuum Tube Stereo Balanced Line Amplifier

## Model VL20



*Bring Music With Life*



## VL20 Stereo Balanced Line Amplifier

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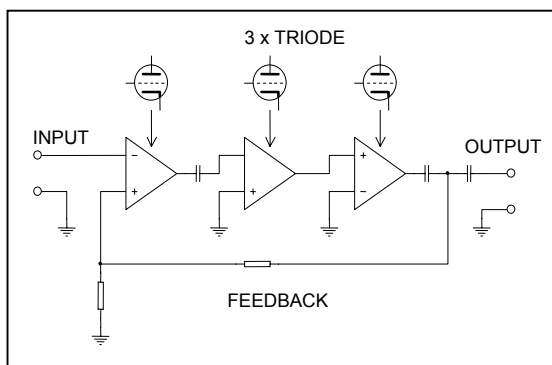
The VL20 vacuum tube line amplifier has employed a wideband balanced amplifying topology. The balanced operation will effectively cancel external electromagnetic noise picked up by audio cables. With the additional enhanced linearity offering by the wideband balanced amplifying topology, the sonic result is an improved sound quality with three-dimensional images in a natural acoustic landscape. Single-ended input signal via the RCA socket can also be benefited by the balanced operation.

Conventional single-ended line amplifier usually consists of two to three amplifying stages in cascading configuration. This is shown in the diagram below. Since each stage will contribute phase shift, noise and distortion, global negative feedback is needed to improve the overall performance of the line amplifier. Because of the single-ended structure, the amplifier cannot effectively cancel out the electromagnetic noise picked up by audio cables.

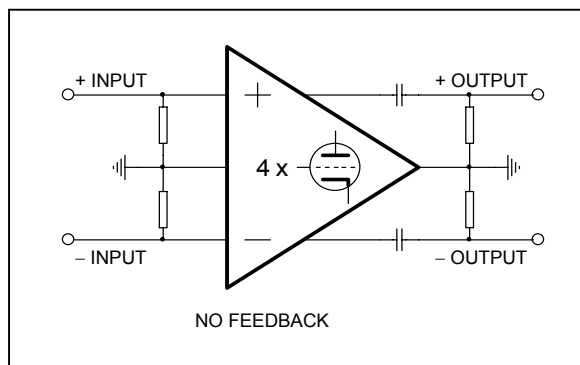
The VL20 uses two 6H30 vacuum tubes per channel. Since each 6H30 consists of two triodes (dual triodes), there are four triodes used per channel. The VL20 uses a total of four 6H30 vacuum tubes and hence, a total of eight triodes are employed.

The VL20 is a single-gain stage wideband balanced amplifier that contains no load resistors, no buffers and no followers. Because of employing just one single-gain stage, the VL20 will have a lower phase shift compared with conventional multi-stage feedback amplifiers. Additionally, no global feedback is used so that the purity of the musical signals can be faithfully preserved.

On the other hand, JE AUDIO has spent extensive hours to select the best available vacuum tubes in the markets based upon their sonic merits and operation stability. All tubes are burned in for at least 50 hours before they are tested for electrical characteristics so that matched tubes can be obtained.



Block diagram of a conventional single-ended line amplifier by cascading three amplifier stages and employing global negative feedback.



Block diagram of the VL20 line amplifier. Each 6H30 consists of two triodes (dual triodes). A total of four triodes are employed per channel

## Features

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- Four sets of balanced inputs or unbalanced (RCA) inputs.
- One set of balanced output and one set of unbalanced (RCA) output.
- Use of wideband balanced amplifying topology to improve low-level signal integrity.
- Use of wideband MOSFET transistors in high performance constant current source to improve common-mode rejection ratio (CMRR).
- No load resistors, no buffers and no followers.
- No semiconductor transistors, op-amps or transformers for signal amplification.
- No global negative feedback.
- Bandwidth over 500kHz.
- Premium grade R-core power transformer reducing noise and electromagnetic interference.
- Premium grade precision DC regulated power supply.
- Use of audio grade signal capacitors.
- Modern chassis design improving looking and heat ventilation.
- Soft-start circuit reduces inrush currents when switching on. It also ensures that in the first 30 seconds a reduced supply voltage is applied to vacuum tubes. This prolongs life of all rectifying diodes, power supply filtering capacitors and vacuum tubes.



## Specifications

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<b>CIRCUIT DESIGN:</b>	Wideband Balanced Amplifier Topology
<b>VACUUM TUBES:</b>	4 x 6H30
<b>TOTAL HARMONIC DISTORTION:</b>	< 0.08% (@ 2V/100k $\Omega$ load)
<b>MAXIMUM OUTPUT:</b>	> 40V (@ 100k $\Omega$ load)
<b>SIGNAL GAIN:</b>	14dB
<b>FREQUENCY RESPONSE:</b>	+0, -3dB from 10Hz to 500kHz (Measured when the volume control is bypassed)
<b>INPUT IMPEDANCE:</b>	> 47k $\Omega$ (Singed-end input) > 94k $\Omega$ (Balanced input)
<b>OUTPUT IMPEDANCE:</b>	< 1.1k $\Omega$ (Each phase)
<b>S/N RATIO:</b>	> 85dB (Balanced output)
<b>POWER CONSUMPTION:</b>	70W
<b>DIMENSION:</b>	H=160mm, W=444mm, D=387mm
<b>NET WEIGHT:</b>	15 kg / 33 pound

(Specifications subject to change without prior notice.)

