

A-1VL



- Exclusive Onkyo VL Digital Technology
- Separate Toroidal Transformers for L/R Channels
- High-Grade, Banana-Plug Compatible, Transparent Speaker Posts
- Low-Impedance, Copper Bus Plates
- Audiophile-Grade Parts
- Linear Motor Volume Control
- Brass Insulators
- Brass Pin Jacks
- Heavy-Duty Inlet Power Cord
- Rugged Chassis to Prevent Vibrations
- Full-Function Remote Control

[Amplifier Section]

•Power output: 100 W + 100 W (8 Ω, 1 kHz, DIN) •Dynamic power: 310 W + 310 W (3 Ω), 240 W + 240 W (4 Ω), 130 W + 130 W (8 Ω) •THD (Total Harmonic Distortion): 0.08% (1 kHz, 1 W) •Damping factor: 25 (front, 1 kHz, 8 Ω) •Input sensitivity and impedance: 200 mV/50 kΩ (LINE), 2.5 mV/50 kΩ (PHONO) •Output level and impedance: 200 mV/2.2 kΩ (REC OUT)
•Phono overload: 130 mV (MM, 1 kHz, 0.5% THD) •Frequency response: 10 Hz–60 kHz (LINE, +1 dB/-3 dB) •S/N ratio: 100 dB (CD, IHF-A), 70 dB (PHONO, IHF-A) •Speaker impedance: 4 Ω–16 Ω

[General]

•Power supply: AC 230–240 V, 50 Hz •Power consumption: 105 W •Dimensions (WHD): 435 x 81.5 x 390 mm •Weight: 11.3 kg

C-1VL



- High-Precision Clock (± 1.5 ppm)
- VLSC (Vector Linear Shaping Circuitry)
- 192 kHz/24-Bit Wolfson® D/A Converters
- Direct Digital Path
- Digital Out On/Off
- Brass Insulators
- Brass Pin Jacks
- Heavy-Duty Inlet Power Cord
- High-Grade Pin Cable Included
- 3 Digital Outputs (2 Optical/1 Coaxial)
- Rugged Chassis to Prevent Vibrations
- Remote Control

[Audio Section]

•Frequency response: 5 Hz–20 kHz •S/N ratio: 110 dB •Dynamic range: 96 dB •THD (Total Harmonic Distortion): 0.002% (1 kHz)
•Output level and impedance: -22.5 dBm (digital optical), 0.5 V p-p/75 Ω (digital coaxial), 2.0 V/320 Ω (analog)

[General]

•Power supply: AC 230–240 V, 50 Hz •Power consumption: 9 W •Dimensions (WHD): 435 x 81.5 x 356 mm •Weight: 6.8 kg



VL Digital—Hear What You've
Been Searching For

ONKYO
IMAGINATIVE SIGHT & SOUND

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"VLSC" is a trademark of Onkyo Corporation.

Due to a policy of continuous product improvement, features and specifications are subject to change without notice.

Caution

To enjoy proper and safe operation, please read the user manual before use. Do not install this product where it may be exposed to excessive water, humidity, steam, dust or oily smoke. This may lead to electric shock or malfunction.

Integrated Digital Stereo Amplifier **A-1VL/C-1VL** Audiophile-Grade CD Player

A Quest for the Perfect Digital Sound

A-1VL

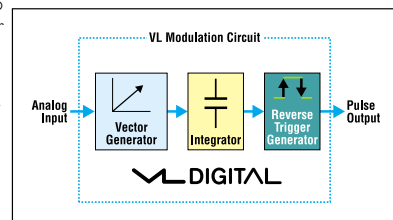
A Digital Amplifier that Reproduces Music with Power and Speed for a More Faithful Performance

Digital amplifiers typically achieve a very high power efficiency of 90%, compared with a maximum of 70% for analog amplifiers. Consequently, power consumption and heat dissipation are relatively low, making more compact designs possible. With the slender, stylish A-1VL, Onkyo has taken full advantage of this benefit. Another of the main benefits of digital amplifiers—their ability to reproduce sound with more lifelike power and speedier transient response—is taken to a higher level on the A-1VL. The A-1VL reproduces the clarity and impact of musical instruments as they were recorded onto disc, creating pure, unadorned sound in the mid-to-high range, and faster transient response at the low end.

Onkyo's VL Digital Technology Mitigates Digital Conversion Errors

There are numerous analog-to-digital conversion methods with relatively low frequencies. For the A-1VL, Onkyo chooses pulse width modulation (PWM), as it produces little noise in the higher frequencies. In amplifiers that use conventional PWM, there is a one-to-one correlation between the signal and the pulse, which results in a signal phase marred with inaccuracies created by pulse noise in the original signal. To get around this, Onkyo combines PWM with its exclusive VL (Vector Linear) Digital technology, which assesses the average energy in a given cycle so it can greatly reduce phase inaccuracies created by pulse noise in the original signal.

Onkyo's VL Digital technology comprises a vector generator, an integrator (like a charger) and a reverse trigger generator. When the analog input signal is received, the vector generator outputs a current proportional to the size of the analog input. This current is sent to the integrator, where it is "charged." When the charge quantity reaches a specified value, the trigger operates and inverts the output pulse. Circuits alternately charge and invert, performing pulse width modulation proportional to the analog signal. The upper and lower portions of the spike noise waveform are symmetrical, so they have the same area. Therefore, if the analog signal contains spike noise, the charge quantities will cancel each other out, thus enabling error-free A/D conversion.



Thick, Low-Impedance Copper Bus Plates for Perfect Ground Potential

Electricity stored in an amplifier's capacitor is outputted via an electric power line. To provide continuous output at full power, a digital amplifier requires a large, stable flow of current. Any loss of power at the output stage becomes a hindrance to the instantaneous flow of that current. That's why we use thick (1.5 mm x 5 mm) copper bus plates on the A-1VL, to achieve an extremely low level of impedance. In contrast, printed circuit boards typically use beaten copper for their power lines. As this beaten copper is extremely thin (as thin as 35 μm), it creates far more impedance. Even if it were the same width as the copper bus plates, a printed circuit board would still yield 43 times as much impedance. So, if you want rock-solid power output at virtually any volume, the A-1VL won't let you down.

Output Paths that Enable Even Greater Power Transmission

Many hi-fi users employ heavy-gauge speaker cable in their systems. However, when it comes to internal wiring—from the amplifier's input circuitry to the speaker terminals—beaten copper is mostly used, usually in the form of printed circuit boards. Due to its extreme thinness of 35 μm, this beaten copper can produce high levels of impedance that reduce the effectiveness of the speaker cables, no matter how thick they are. That's why the A-1VL's output paths comprise extra-thick copper bus plates—1.5 mm thick, 12 mm wide and 18 mm² in cross-section area. With signal paths kept as short as possible, a smooth signal flow is possible.

Other Contributing Features

- Toroidal power transformers reduce leakage of magnetic flux and regulate the power supply.
- Brass insulators support the fabric and mitigate the effect of vibrations.
- Brass pin jacks counteract vibrations and hold plugs firmly in place.
- Large speaker terminals ensure firm clasp of the cable core.
- 'MAIN IN' terminals enable the A-1VL to be used as a power amplifier.

C-1VL

A High-Precision Clock to Reproduce Even the Smallest Element of Sound Information

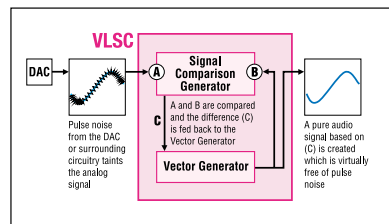
The C-1VL boasts an extremely precise clocking mechanism to control and coordinate the timing of all digital signal processes. If you think of the clock as an orchestra conductor, then the separate digital signals are the individual instruments in that orchestra. Without a talented conductor—i.e., an accurate clock—the sound can become muddy and indistinguishable. With the C-1VL's state-of-the-art crystal oscillator; though, you can rest assured. It achieves a frequency deviation of just ±1.5 ppm, compared with ±50 ppm on a conventional crystal oscillator. The difference is instantly noticeable: a stunningly realistic sound field, and a beautifully sustained tone for all musical instruments.

Wolfson® Microelectronics 192 kHz/24-Bit DAC to Improve Audio Quality

Specifically designed for audio applications, the C-1VL's on-board digital-to-analog converter (DAC) boasts a sampling rate of up to 192 kHz. With its multi-bit, sigma-delta design, this DAC extends the C-1VL's signal-to-noise ratio out to 110 dB and increases its tolerance to clock jitter.

Virtually Eliminate Noise with VLSC (Vector Linear Shaping Circuitry)

Conventional D/A conversion methods reduce digital pulse noise at the conversion stage but can't remove it completely. Previously only available on Onkyo's high-end components, VLSC employs a unique D/A conversion circuit to overcome this problem. Data is converted between the sampling points, and these discrete sampling points are joined with analog vectors in real-time to produce a smooth output waveform. The result—a noiseless, smooth analog signal based on the digital source.



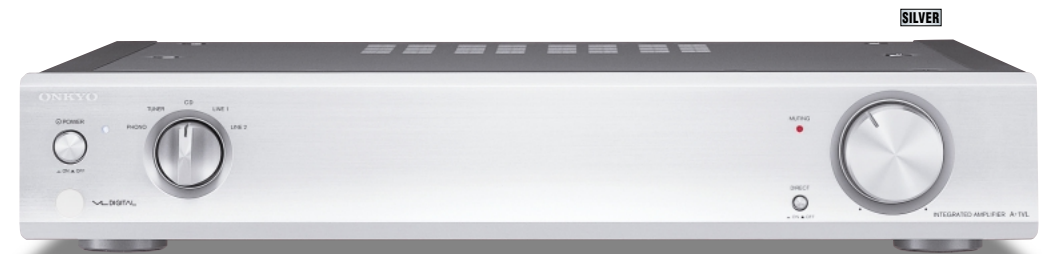
Refining the Internal Mechanism to Counter Vibration

It is widely known that unwanted vibration from a component's parts will taint the sound quality it produces by creating noise that masks subtle sounds. But not all vibration adversely affects the sound signal: some is harmful, some harmless. In the case of a typical CD player, vibration interference arises not only from the speakers, but also from the disc-spinning mechanism. For the C-1VL, we undertook a painstaking study to discover which parts of the mechanism produced harmful vibrations. We then created methods to counteract these vibrations without damaging the sound signal itself. Our guiding consideration was always how best to recreate the on-stage performance so that the listener could feel fully immersed in the music.

Other Contributing Features

- Toroidal power transformer reduces leakage of magnetic flux and regulates the power supply.
- Brass pin jacks counteract vibrations and hold plugs securely in place.
- Brass insulators
- Direct Digital Path protects the audio signal against potential noise from nearby microprocessors and power supplies.
- Digital Out On/Off function

A-1VL Integrated Digital Stereo Amplifier



VL DIGITAL

A Stylish Marriage of Power and Finesse

Onkyo's A-1VL digital stereo amplifier provides superior audio performance via quality audiophile parts and uncompromising build quality. This slim, futuristic digital amplifier possesses a low-impedance design with carefully selected parts—large capacity, separate toroidal transformers, thick copper bus plates and high-grade transparent speaker terminals. Also, the A-1VL combines PWM (Pulse Width Modulation) amplification and exclusive VL (Vector Linear) technology to smooth the ripples (fluctuations) and eliminate the noise inherent in analog or other PWM technologies. The result is 90% power efficiency for wide dynamic and frequency ranges, as well as noticeable sound harmony.



C-1VL Audiophile-Grade CD Player



VL VECTOR LINEAR SHAPING CIRCUITRY 192kHz/24bit DIRECT DIGITAL PATH

Beautiful, Clean Lines—Inside and Out

The C-1VL CD player brings together superb audio reproduction, user-friendly operability and a modern design sensibility. Displaying a range of technological advancements, this player effortlessly works with and complements the A-1VL digital stereo amplifier. Onkyo's exclusive VLSC (Vector Linear Shaping Circuitry) and high-grade Wolfson® D/A converters ensure that the signal is free from the noise that taints other players. Also, a high-purity, heavy-gauge, shielded cable guarantees a digital audio signal that is noise-free and less susceptible to flux. The C-1VL CD player appeals to the music enthusiast who won't settle for anything less than the Onkyo approach to audio excellence.

