Denon AVR-3300 Dolby Digital & dts A/V Receiver

Overview

Denon's flagship A/V receiver, the AVR-5700, set the standard for home theater and music reproduction accuracy, with a host of technological advances and user features that define the present state-of-the-art in a single A/V component.

Denon's AVR-3300 A/V receiver has been specifically designed to incorporate as many of the AVR-5700's technologies and features at a dramatically lower retail price.

AVR-3300 Technical Details

Front End

Inputs (analog) are provided for the following audio sources:

• AM/FM tuner (built-in); moving magnet phono; CD; MD/Tape

Inputs are provided for the following video sources:

• DVD; VDP; TV/DBS (TV input, or satellite tuner); VCR 1; VCR 2/V AUX

Analog inputs are converted to digital via precision 20 bit oversampling A/D converters for delivery to the DSP section. An analog 2 channel bypass routes stereo analog audio past the DSP section, providing straight-through signal purity. A parallel bass management circuit provides high pass/low pass filtering for the main left and right speakers and the subwoofer, so that the analog signals appearing at the left and right speaker jacks remain in analog form from the AVR-3300's input jacks all the way through to the outputs, when the ANALOG button is selected on the remote control (for stereo music listening without surround simulation enhancement). This feature is especially important if your CD player has HDCD decoding, as a digital connection does not provide the benefits of HDCD processing. The AVR-3300's analog bypass mode preserves the full fidelity of your favorite HDCDs, LP recordings and other high quality sources. Competitive A/V receivers typically "digitize" all incoming analog signals, even during simple stereo operation. Not so with the AVR-3300 (or other Denon digital A/V components).

A record output function allows the user to select an audio source for direct delivery to the recording output jacks, while the user listens/watches another source.

A separate Multi-zone output selector delivers a fixed or variable level output to the multi-room output jacks (one stereo pair) for second zone music listening.

Cinema Equalizer tames overly bright movie soundtracks by gently tailoring (not filtering) the very top octaves of the three front channels.

Eight Channel External Inputs are provided for future 7.1 channel discrete surround formats. Newly proposed multi-channel music formats such as Super Audio CD and DVD-Audio may have up to eight discrete channels – the AVR-3300 is prepared for the future of multi-channel music reproduction.

Digital Inputs

The AVR-3300 is provided with four digital inputs, one coaxial and three optical. These are all “addressable” – that is, they are not "locked" to any input, but can be assigned to the user's various sources according to the type of digital output jack found on each – this is done at the time of system setup. The use of addressable digital inputs with both optical and coaxial types supported will allow virtually any combination of audio/video source components to be accommodated.

Video Switching

Composite and "S" video inputs are provided for:

• DVD; VDP; TV/DBS; VCR 1; VCR 2/V AUX

Composite and "S" video recording outputs are provided for:

• VCR 1 and VCR 2/V AUX

In addition to composite and "S" video, the AVR-3300 also provides component video switching. In anticipation of forthcoming DTV (North American Digital Television) set-top decoder boxes, the AVR-3300 can accept a component video input (Y, R-Y, B-Y) signal from the TV/DBS input, and another from the DVD player, such as Denon’s DVM-3700 and DVD-1500 models. A separate dedicated component video output delivers the signals to the television monitor.

For maximum video fidelity, the AVR-3300 features a wideband video section, with very low noise and extended frequency response.

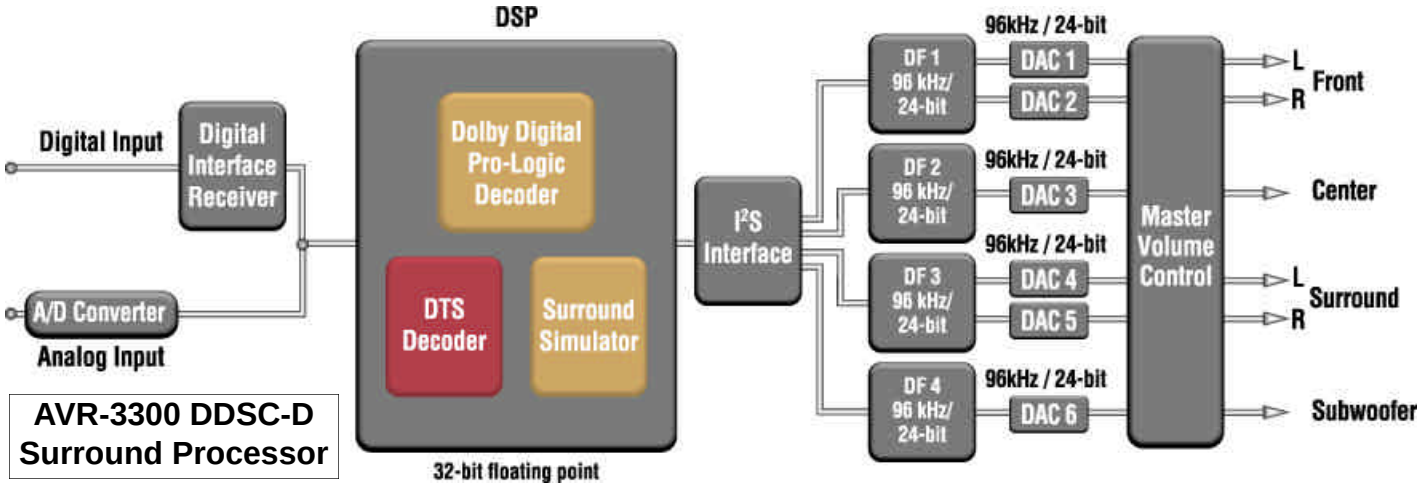
The component video output has no on screen display, for best video pass-through quality, as well as for compatibility with future video sources with progressive scanning outputs. With 27 MHz (-3 dB) bandwidth, the component video input signals are presented intact to the television monitor, compatible with progressive and DTV sources.

Digital Signal Processing Section

Denon A/V components have incorporated Denon's DDSC (Dynamic Discrete Surround Circuit) design concept for years. Essentially, DDSC features selected and dedicated processor(s) matched with selected premium ancillary devices, which in total work together to provide a superior surround sound processing function than the highly integrated (and lower cost) IC solutions used by competitors.

At the core of the AVR-3300 surround processor block is the newest Analog Devices SHARC (Super Harvard Architecture Computer) 32 bit floating point DSP processor chip. The SHARC processor has a 50 MIPS (millions of instructions per second) computing speed, with an 80 MFLOPS (millions of floating point operations per second) sustained speed capability, with a peak throughput of 120 MFLOPS. The AVR-3300 is the first A/V receiver in it’s price class to feature the SHARC DSP.

To preserve the fidelity of the high bit data provided by the DDSC-D SHARC processor section, the AVR-3300 features full 24 bit 96 kHz premium grade DACs on all six audio channels. Unlike other processors which use cheaper integrated codecs (combination A/D and D/A chip), the Denon DDSC-D philosophy extends through the D/A section, featuring full 24 bit 96 kHz digital filters for all six channels, followed by full 24 bit 96 kHz premium Analog Devices AD-1855 DACs.



The AVR-3300 features a unique Denon-designed digital interface receiver, that can accept high bit/high sampling stereo PCM digital audio, up to 24 bit word length and up to 96 kHz sampling frequency. Recently issued DVD-Video discs with 24/96 audio, such as the Chesky Records and Classic Records 24/96 audiophile DVDs, provide a very high resolution stereo presentation with far greater dynamic range and frequency response, compared to CD. Denon's newer DVD player models, such as the DVM-3700, are equipped with digital outputs that provide a real 24 bit, 96 kHz stereo PCM bitstream.

When a compatible Denon DVD player is connected digitally to the AVR-3300, the listener experiences real 24 bit/96 kHz stereo audio via direct digital decoding and the use of the real 24 bit/96 kHz digital filters and DACs employed in the DSP output section. Other receivers cannot handle 24/96 kHz PCM sources, and downsample and/or truncate accordingly, providing only CD-quality audio with these higher resolution DVDs. Most competitive DVD players also truncate and downsample the DVDs 24/96 PCM bitstream, outputting only a CD-equivalent 16 bit, 48 kHz PCM bitstream at their digital output(s). In the presence of a 24/96 digital input signal, the AVR-3300 indicates via the front panel display that real 24/96 decoding is occurring, and switches to stereo mode automatically for best sound (surround simulations are disabled for 24/96 pure stereo sources).

Intelligent Volume Control

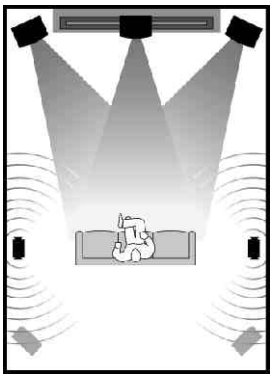
The AVR-3300 features a variable volume control design, with a "smart" volume control algorithm. Via remote control, the volume is raised or lowered in gentle 1 dB steps, or more quickly if the volume up/down buttons are pressed and held. The master volume knob on the front panel has the ability to detect whether it is turned quickly or slowly and react accordingly. If the user slowly turns the master volume knob up or down, the volume is adjusted in 1 dB increments accordingly. Give the knob a quick twist up or down, and the volume will raise and lower with greatly increased speed (much like an analog volume control).

Future Proof

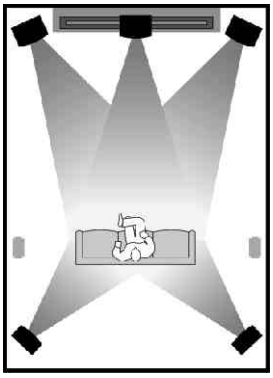
For a clear system upgrade path, the AVR-3300 features eight channel (7.1) pre-amp outputs, with all eight channels controlled by the master volume control. The AVR-3300 is prepared for the future of multi-channel music reproduction, regardless of format developments.

Dual Mode Surround Speaker Operation

Movies or Music? Until now, A/V enthusiasts were forced to choose which type of surround sound they prefer and configure their system accordingly:



Movie Surround – For the most realistic reproduction of a motion picture soundtrack's surround sound field, bipolar or dipolar speakers that are mounted high on the side walls on either side of the prime listening position are most often recommended. This provides a broad diffuse surround sound field, that still provides left surround or right surround directionality, without the localization that plagues conventional direct radiator (monopole) surround speakers.



Music Surround – For the most realistic reproduction of a discrete multi-channel music surround program, rear-mounted, forward facing direct radiator (monopole) speakers are preferred. This provides the true five channel music surround effect, and produces more natural "rear surround" sound with discrete multi-channel music.

The AVR-3300 incorporates two sets of surround sound speaker terminals. Connect one pair of bipole or dipole surround speakers, placed high on the side walls near the prime listening position. Connect another pair of direct radiator speakers, perhaps choosing the same type as used for the front left/center/right, and place these at the rear corners of the room facing the prime listening position.

The AVR-3300's Personal Memory Plus function “remembers” your preferred surround sound mode and speaker configuration, according to the input you’ve selected. For example, choose DVD, and the surround processor is automatically engaged to decode Dolby Pro Logic, Dolby Digital or DTS, with instantaneous bitstream recognition and decoding, and your choice of the surround speaker pairs. A surround speaker selector button on the remote allows you to choose either surround speaker pair at the touch of a button - choose side-mounted bipolar/dipolar type speakers for spacious and enveloping movie surround sound, and select rear-mounted directional speakers for awesome 5.1 channel discrete multi-channel music surround reproduction.

The AVR-3300 provides the best possible movie and music surround performance, all at the touch of a button.

Enhanced Bass Management

The AVR-3300 features superior bass management, which is responsible for ensuring that deep bass sounds do not arrive at the smaller center, front and surround speakers, at the same time ensuring that higher frequencies do not arrive at the subwoofer. The AVR-3300's crossover frequency is set at 80 Hz for optimum subwoofer-to-main speakers blend.

During setup, the user can choose Large or Small according to the frequency characteristics of the system's speakers. A typical system would be configured as follows:

- Subwoofer: ON
- Main (L/R): SMALL
- Center: SMALL
- Surround: SMALL

However, some users will have large full range left and right speakers, which may even include amplified woofer sections. In this case, if the user chooses Large for the main left and right speakers, the subwoofer will only reproduce bass that appears in the LFE (.1) channel. Many movie soundtracks that are 5.1 encoded actually have little or no deep bass in the LFE channel, so after a period of inactivity, the subwoofer might go into sleep/standby mode, and then miss the first few seconds of any LFE content that may appear suddenly.

The AVR-3300 allows the user to alternately select Large for the main left and right speakers and subwoofer on, and directs low bass within the main left and right channels to go to both the left and right speakers as well as the subwoofer. Bass content in the LFE channel is routed to the subwoofer. This can benefit users with large "power-tower"-type main L/R speakers with amplified woofer sections who also have a separate subwoofer in their system.

Power Supply/Power Amp Sections

The AVR-3300 features a high current, high power, all discrete power amplifier block that features identical design and identical performance for all five channels. Featuring high current wideband discrete power transistors, each amplifier channel is rated at 105 watts into 8 ohms (RMS), and has lower speaker impedance drive capability, without the need for power limiting impedance selector switching.

A large, high current 14 lb. power transformer is the heart of the power supply, with multiple stages and tight supply regulation for all stages. High current, low ESR power supply capacitors store the DC energy for delivery to the power amp block.

The power amp block features side-mounted power transistors, with a horizontal laminar finned aluminum alloy heat sink. For cooling, the AVR-3300 incorporates a smart fan system that is microprocessor-controlled. This remarkable system is designed to keep the power transistors at correct temperature levels, as well as keeping fan noise from being intrusive during quiet passages.

The fan is mounted at the front of the power block with the exhaust slots on the rear panel. The fan has an off setting (passive cooling only), a low setting and a high setting (according to the

heat sink/power transistor temperatures).

The fan system is thermally sensitive as well as output level sensitive. Should the fan be on at any time due to high power operation, either at low or high speed, and the soundtrack goes to a quiet passage, the fan is quickly cut back or shut off. This sophisticated system ensures that fan noise will never be audible, while at the same time providing proper temperature control of the important power amplifier output stage.

AVR-3300 Rear Panel

Download the AVR-3300 color literature and/or the owner's manual in PDF format from the Denon website. We invite you to visit your nearest Denon A/V Specialist Retailer for a comprehensive demonstration of the remarkable AVR-3300 A/V Receiver, or any other fine Denon products.

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