

DENON
DVD-3910
ULTIMATE
Upgrade Modification

Our fully balanced ULTIMATE tube output stage for the Denon DVD-3910 was a year in development. We decided to undertake it's development for a number of reasons:

1. The DAC's in the Denon (Burr-Brown PCM1796's) , as well as many other of today's top players, utilize DAC Chip's which have a push-pull output, per channel...in essence, differentially balanced. However, virtually all manufacturers "sum" this balanced design via cheap op amps to return it to single ended, later on in the circuit. This dramatically compromises the potential of the unit. To take advantage of a balanced DAC, you need a fully balanced output stage to follow it. This is what the ULTIMATE MOD is all about...to truly optimize the performance of today's best State of the Art DAC Chip's.
2. We can only accomplish so much, via a purely "parts replacement" mod...to truly optimize the potential of each unit, we must start with a clean sheet of paper.....and offer an output stage with the parts quality, and topology, worthy of a reference quality unit...this, in our view, can only be achieved using a vacuum tube output stage.

Due primarily to size constraints, the ULTIMATE MOD is performed on the Front Two Channels only. We can perform our solid state Level-2 mod on any of the remaining 4 channels. The mod was designed to optimize critical stereo reproduction. It works on all sources, whether the source material is REDBOOK CD, DVD-AUDIO, SACD, or any other format ! All formats are equally improved.

To re-iterate, all the same circuitry, handles all formats, thus, the mod won't improve one format more than the other...they all are GREATLY improved!

The mod was conceived, and conceptually designed by Chris Johnson, the founder and former president of Sonic Frontiers. He was joined by both Glenn Dolick, and Zdenko Zivkovic (both former "senior" SFI design team members), in the actual execution, pcb design, electro-mechanical interfacing, of this concept, into the 3910.

The finished product is the best sounding player that we have ever offered. It will quite comfortably compete with any player made, AT ANY PRICE!

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The ULTIMATE MOD for the Denon DVD-3910 can be broken down into 4 parts:

PART A. The "new" **PCX-designed fully differentially balanced tube output buffer stage** is installed, with concurrent output via **both RCA and XLR's**, which has it's very own, dedicated, power supply pcb, and toroidal power transformer – there are 3 modules in all. Info on the tube stage is as follows:

1. Two tube capacitor-coupled circuit, which can use a variety of tubes, including 6DJ8's, 6922's, 7308's, or any of their derivatives (The mod ships with **ELECTRO-HARMONIX** EH-6922's). As well, it can also be used with the Russian super-tube, the 6H30, made famous by both BAT and then ARC.
2. Parts quality: 5uf **AURICAP** output coupling caps with **REL-CAP** TFT Teflon bypasses; premium **AZUMA** gold-plated ceramic pcb tube sockets; **RIKEN OHM** precision carbon comp resistors; **AUDIO-NOTE** tantalum resistors; **CARDAS** pcb-mount RCA jacks; **NEUTRIK** gold-plated XLR connectors.
3. Multiple fully-regulated power supplies, all on their own distinct power supply pcb, featuring **BLACK-GATE** electrolytic caps in critical locations, and **International Rectifier Hexfred** ultra-fast soft recovery diodes.
4. Custom made 200% duty cycle, low noise, low stray field, **TOROIDAL** power transformer.

NOTE: This vacuum tube-based output buffer stage can be installed into **any** PLAYER which has physical space for all 3 component parts. Although it was designed to be used with DAC Chip's which have differential output per channel, we can also install it into units which have traditional single-ended output.

PART B. Our Level 2 mod is performed on the first two (of three, the 3 is replaced by the tube output stage) stages of the Denon's "overall" ANALOG OUTPUT STAGE: the *I-V (current-to-voltage) Stage*, *Analog Filter Stage...plus*, the associated Denon Power Supply, which supplies these two stages.

1. We upgrade the hyper-critical I-V and ANALOG FILTER op amps...replacing the cheap, stock "surface mount" parts (currently, about 50 cents each, from JRC) with the very best dual op amps offered by **Burr-Brown**...the **OPA-627-AU's**, mounted to special smt-to-smt vertical adaptors (which are 50 times more expensive than the stock part). These parts dramatically enhance both the unit's technical and subjective audio performance. The 3910 ULTIMATE still uses 4 pcs. (not 6, as used in the Level 2) of these dual op amp upgrade modules (2 were not needed, as we now have the tube output buffer stage). For comparison purposes, op amps of this quality are usually found in 2-channel products retailing for \$5 to \$10,000 USD + !

This upgrade alone, is analogous to putting a new engine car...from a 4 cylinder, to a V12 twin-turbo!

2. The output signal currently exits these stages via a miniscule tin/lead plated printed circuit board (pcb) trace. However, in our mod, we instead use both shielded interconnect and hook-up wire which contains 99.999% pure, long-grain 23-awg solid-core **silver DH LABS** wire...with foamed teflon tape-wrap insulated (the very best).

3. The critical signal resistors (22 in all) are changed to precision Japanese made **RIKEN OHM** Carbon Comp types, with gold-plated copper leads. These replace the cheap, magnetic, China-sourced, metal-film resistors.

4. All critical caps are changed to the best **Film** and **Electrolytic** types:

a. Five **BLACK GATE** FK and N Series caps replace the cheapest quality generic electrolytic caps in the stock unit.

b. Fourteen precision 1% **POLYSTYRENE** film and tin foil caps are installed in the analog filter stage, replacing the cheap tantalum caps in the stock unit.

5. The Power Supply has been upgraded with Nine **BLACK GATE** FK, NX, STD series electrolytic caps. These replace the cheap ceramic and/or generic electrolytics, currently employed. All critical analog supply diodes (currently generic quality) have been replaced with ultra-fast soft-recovery FRED type diodes. We use Four **Vishay-Telefunken** and Five **International Rectifier** HEXFREDs.

PART C. A new state-of-the-art "reference quality" Master Clock module, and associated power supply is installed.

1. The ULTIMATE MOD incorporates the LC AUDIO X03 Master Clock module, featuring over 93 discrete parts (many surface mount), on a multi-layer pcb This new state of the art clock replaces a single cheap VCXO chip.

2. As well, we install a **custom designed dedicated power supply** for this module. The result is **state-of-the-art jitter performance** which improves the sonic performance of both the 2-channel analog output, and digital SPDIF output! The clock makes all 6 channels of the unit perform better.

PART D. Chassis upgrades are performed, to add necessary ventilation, damp chassis resonances, isolate the unit from external and internal vibrations and shield from both RFI and EMI.

1. The chassis resonance's have been dampened with 2 sheets of **SOUNDCOAT**.

2. External vibrations have been isolated via Four large compliant **EAR** sorbothane feet.

3. **ERS** EMI/RFI cloth is attached to critical locations to suppress stray EMI &RFI fields within the unit.

4. Numerous ventilation holes are punched into the chassis and top cover to provide adequate air-flow for the tubes, additional power transformer and additional power supply regulators for the new tube stage. These vent holes are then covered with an expanded aluminum mesh, for safety purposes.

5. We install a new male IEC inlet , from **ACME AUDIO**...it is both silver-plated and cryogenically treated.

6. Lastly, we used **WBT** 4% "lead free" **Silver Solder** throughout. The upgrade mod and custom tube stage installation takes upwards of **14 hours** to complete. This includes *un-packing, dis-assembly, chassis re-manufacturing, pcb module assembly, component part upgrading, re-assembly, testing and re-packing.*



PRICE

**New fully Modified DVD-3910's are available for \$3990.00 USD + frt
\$2790.00 USD + frt to modify YOUR existing DVD-3910**

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More photos on the [Ultimate Upgrade Modification of DENON-3910](#) [click here](#)

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OPTIONS

1. To perform a center channel LEVEL 2 mod adds \$600.00.
2. To perform a LEVEL 2 upgrade mod on all 4 "additional" channels (3 thru 6) would "bundle" together for \$1900.00
3. To add a pair of **BYBEE** "Slipstream" Quantum Purifiers to the power supply, just after the AC line input, would add \$190/pr., installed

In Canada, outside North America, or for aftermarket sales, contact PCX directly...at 905-681-9602....or info@partsconnexion.com.

In the US, call Wally at Underwood HiFi.....770-667-5633 (underwoodwally@aol.com) to order a unit or arrange to have your unit modified.

**Modified units come with a One-Year warranty on all work performed.
We also warranty the rest of new units for 90 days on Parts and Labor.**