

July 2017

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Audio Research Vacuum Tube LS28 Line Stage And VT80 Power Amplifier
Far more than a foundation for a highly musical sound system.

Review By Rufus Smith



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Audio Research's LS28 vacuum tube stereo line stage and VT80 vacuum tube stereo power amplifier are both members of the company's Foundation Series. In addition to the line stage and power amplifier, their DAC9 digital-to-analog converter and the PH9 phono stage round out the line. These components, which make up the Foundation Series, are ARC's "entry level" products. However, the person who dismisses these components as an "entry level" product is making a *big* mistake. They will hold their own with components costing *quite a bit* more.

Audio Research LS28 Line Stage

The LS28 vacuum tube line stage measures 6.5" x 19" x 13.7" (HxWxD) and weighs 15.9 pounds. Styling is comparable to past ARC products with a silver chassis and a silver faceplate with a black center panel which contains the green florescent display. A black anodized finish is optional. Two rotary knobs flank the front panel but unlike previous products, the left knob selects the eight inputs and the right knob controls the volume through an impressive 103-step microprocessor. Directly below the display are six push buttons labeled Power, Menu, Enter, Mono, Invert and Mute. The solidly built remote mirrors all of the front panel functions.



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The Menu Function allows the user to adjust the various features of the LS28. Through the use of the front panel buttons and the rotary dial, the settings can easily be changed. As noted above, these functions may also be changed from the remote. The features are "Auto Shutdown", "Processor Mode", "Tube Hours", "Display Brightness", "Volume Reset" and "Input Naming". The "Auto Shutdown" feature is designed to turn the preamplifier off after a period of inactivity. It can be set for one to eight hours or it may be deactivated. "Processor Mode" is a fairly common feature on preamps today. "Tube Hours" displays the accumulated hours that the LS28 has been powered on providing an instantaneous reading of the number of hours on the tubes. "Display Brightness" offers six different settings, including off for the florescent display. "Volume Reset" tells the LS28 to either remember the volume settings for each individual input or to reset them to zero after powering the unit off. "Input Naming" provides a selection of names that can be assigned to each input allowing for easier identification of the various outputs.





The rear panel is nicely laid out and everything is clearly labeled. There are eight pairs of inputs on the LS28 four of which are balanced and four which are single ended. The input impedance is 100 kOhms balanced or 50 kOhms unbalanced. There are two pairs of XLR balanced / RCA single ended outputs that are wired in parallel with an output impedance of 600 Ohms balanced or 300 Ohms unbalanced. Using both of these inputs simultaneously requires the use of an amplifier with an input impedance of 20 kOhms or higher. ARC also provides one set of Bal/SE outputs to connect the LS28 to a recorder. This output provides a fixed-level signal to which ever set of inputs are selected. The rear panel also provides an RS-232 input, an IR input, which utilizes a standard 1/8" mono connector and a 12 Volts DC trigger. Rounding out the rear panel is a power connector and a fuse holder.



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The LS28 is a pure Class A design with a single gain stage and zero feedback. The analog circuitry is differentially balanced and is a hybrid design that utilizes JFETs and four 6H30 vacuum tubes with an estimated life of 4000 hours. The circuit does not invert phase. The power supply, which is fully regulated takes up half of the chassis. Audio Research lists the LS28s frequency response at +0/-3dB, 0.04Hz to 200kHz at its rated output (Balanced, 200k Ohms load) with distortion of less than 0.007% at 2 Volts RMS through the balanced outputs.

Audio Research VT80 Power Amplifier

The VT80 vacuum tube stereo amplifier measures 10.33" x 19 x 19.4" (HxWxD including terminals) and weighs in at 45.7 pounds. Like the LS28, it is finished in silver with a black panel in the faceplate. As with the other Foundation products, the VT80 is available in black. The faceplate contains an on/off button and an indicator light that glows green when the unit is powered on. The amp is built along the lines of a classic tube power amp with two 6H30 Driver Tubes (one for each channel) toward the front of the chassis, two matched pairs of KT120 output tubes behind those and the Output Transformers in the back. The rear panel is cleanly laid out as one would expect from ARC.



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Audio Research's VT80 utilizes a fully balanced circuit topology and has both balanced and single-ended inputs. There is a switch to select which of the inputs is in use. There are two proprietary output terminals for either 4 or 8 Ohm loads. Power output remains at 75 Wpc, two channels, regardless of which outputs used. The rear panel also contains an RS-232 connector for use with home automation controls and a 12 Volt Trigger input to allow remote switching of the amplifier. There is also a meter that measures the number of hours on the tubes, which is a nice feature. Like the other components in the Foundation series, the VT80 is equipped with an auto-shutdown feature that powers the amp down after a period of non-use, increasing tube life. This feature is defeatable by a switch on the back panel. Rounding out the back panel is an IEC connector for the 20-Ampere power cord and a fuse.

The fitted 6H30 Driver tubes have an estimated life of 4000 hours and the KT120 Output tubes have an estimated life of 2000 hours. Audio Research ships each amp with two pair of matched Russian KT120s. For those out there who like to play with tubes, the VT80 can use 6550s, KT88s, KT90s and KT150s. For the purposes of this review, I stuck with the supplied tubes. The power supply is solid-state and forgoes the use of a rectifier tube in favor of a solid-state rectifier. This was done to insure better reliability as solid state rectifiers generally are more efficient.

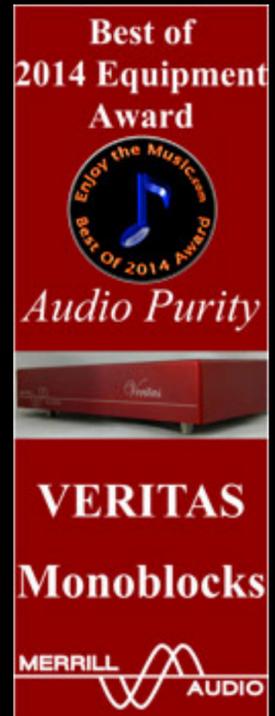
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In a first for ARC, the VT80 incorporates an auto-bias circuit that monitors the idle current of each tube. On turn-on, each tube will auto-bias with the circuit setting the idle current to an optimal 65mA per tube. Most tube amplifiers must be re-biased periodically as the tubes age. This is usually a manual operation that involves bias pots, a screwdriver and either a light by each tube that goes out when optimal bias is reached or even more daunting for the technologically challenged, a multimeter. The auto-bias circuit makes this chore a thing of the past and lets the owner concentrate on more important things.

Upon power-up, the VT80 goes into a 30-second automatic mute cycle that allows the circuitry to stabilize. This cycle is indicated by the power indicator flashing. Once the indicator changes to solid green, the amplifier is ready to go.

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As noted above, the VT80 is rated at 75 Watts per channel continuous regardless of whether the 8 or 4 Ohm taps are used. There is 1kHz total harmonic distortion and is typically 1% at 75 Watts, which becomes below 0.05% at 1 Watt. ARC reports the frequency response as 0.7Hz to 80kHz down (-3dB at 1 watt). Input impedance is 300 Ohms XLR balanced and 150 Ohms RCA single ended.

A Little Background And Setup

Must admit that I was a little surprised, and honored, when *Enjoy the Music.com's* Creative Director Steven R. Rochlin called and offered me the opportunity to review the Audio Research LS28 line stage and VT80 amplifier. Have been away from writing for several years due to some major health issues. During that period, it was decided that I would downsize my system and so sold most of the components that made up my reference system for many years. Kept only my VPI analog front end and Wilson Audio speakers. Also moved to a new home that provided me with a dedicated room, and so I set up a modest system built around the remaining components plus a DK Design Group VS.1 Mk II integrated amplifier.

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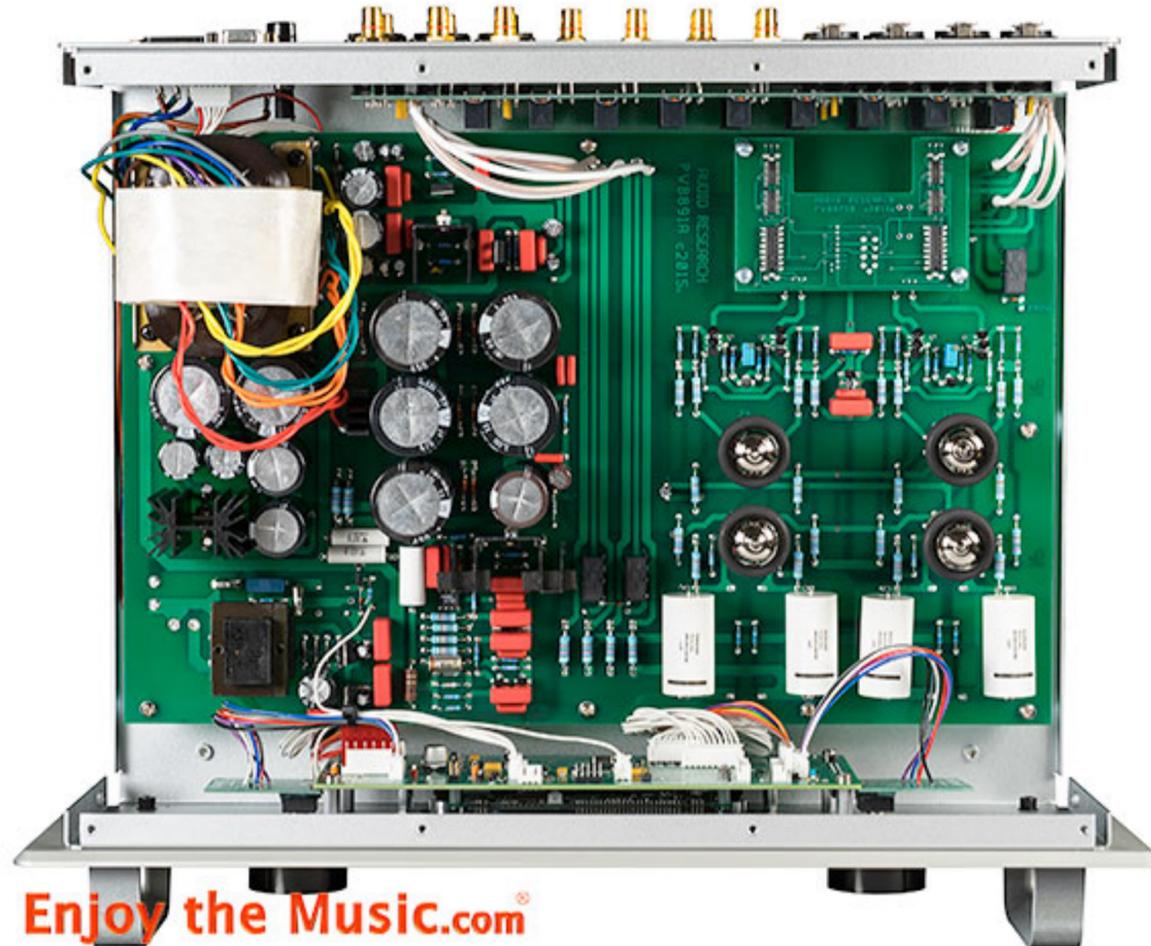


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Inserting both components was straightforward. Before setting up the preamp and amp, I read both manuals from cover to cover to see if there was anything I needed to be wary of during setup. There was not. All that is required is to install the tubes for both products into their proper sockets. Audio Research thoughtfully includes a Phillips screwdriver and marks each tube so that it will be inserted into the appropriate socket. The units were placed in the racks. Both units were plugged into a Core Power Technologies Equi-Core 1800 balanced line conditioner. I let both units break-in for 150 hours before sitting down to do any serious listening.

First up was Flagship Romance's album *Fee Fi Foh Fum* CD (Gatorbone Records). Flagship Romance is a duo comprised singer/songwriters Shawn Fisher and his wife, Jordyn Jackson. I was introduced to their music last year at a local house concert hosted by my good friend, Rufus Smith. No, we are not related and how we met is a fascinating story for another day. Shawn and Jordyn are both extremely talented as individual performers who are magical when they perform together. They have a chemistry and passion that draws the listener into their performances. When I played this CD through the LS28/VT-80 combination, the magic that I experienced when I heard them live was fully repeated. In the title track "Fee Fie Foh Fum" Shawn and Jordyn's voices float around each other while the guitar blends seamlessly into the mix. No matter which track off this album I played, the magic was there with the ARC combo being completely faithful to the recording, which was recorded live with no splicing or tuning.



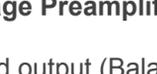
The LS28/VT-80 is a champ at recreating the space of a recording. When you were listening to the wonderful recording of "Pie Jesu" from John Butler's *Requiem* by the Turtle Creek Chorale and The Women's Chorus of Dallas [Reference Recordings RR-57CD]. The soundstage extended beyond the speakers giving the listener an indication that the performance was taking place in a large acoustic space. Complementing the width of the stage was its depth, which extended beyond the back wall. Literally the walls just disappeared. While the soundstage recreation was excellent, the instruments were precisely located within that space. The Turtle Creek Chorale and the Woman's Chorus total around 220 members. Each voice was presented in its individual space but was smoothly blended together to sound as one. The soloist was presented slightly off of center while the Fisk Organ filled in the rear. I closed my eyes and was easily transported into the Meyerson Symphony Center.

Where the ARC combo really shines is in its reproduction of the female voice. Jordyn Jackson of the above-mentioned Flagship Romance is also known for her interpretation of jazz and blues standards. In September 2009, she spent time in New Orleans. The time spent in the historic garden district inspired her to record an album featuring her interpretation of ten classic jazz standards. Aptly titled *September in the Garden* [Right Recordings], the album showcases her superb vocal talents. Jordyn's voice is seductive with a good measure of sweetness thrown in for added flavor. Backed by a wonderful group of New Orleans musicians whose playing provide the perfect background for her captivating voice. Nowhere is this more evident by her rendition of "The First Time I Ever Saw Your Face". Her performance is a sexy tour de force that will send chills through the listener. Audio Research's LS28 stereo line stage and VT80 vacuum tube stereo amplifier captures the emotion and passion that is found in her voice with ease without any harshness.

Conclusion

Is the Audio Research vacuum tube LS28 line stage and VT80 tubed amplifier perfect? No, they are not. On some rock recordings, it had a tendency to soften edgy recordings. Am I saying it sounds euphonic. No, I am not. What I am saying is that the combo is less analytical sounding than past ARC products that I have experienced.

Audio research's LS28 and VT80 are part of Audio Research's Foundation series, which are considered to be their "entry level" products. They should not be considered "entry level" but rather the foundation on which around which a highly musical system can be built. If I had a complaint, it would be that the VT-80 does not have controls to easily switch it to mono operation. Would love to have a pair in mono configuration. That extremely minor quibble aside, Audio Research's vacuum tube stereo LS-28 line stage and VT-80 amplifier should be on your short audition list if you are looking to build a musical tube based system. I know they have brought me back to tubes after 20 years of listening to solid-state.

Tonality	
Sub-bass (10Hz – 60Hz)	
Mid-bass (80Hz – 200Hz)	
Midrange (200Hz – 3,000Hz)	
High Frequencies (3,000Hz On Up)	
Attack	
Decay	
Inner Resolution	
Soundscape Width Front	
Soundscape Width Rear	
Soundscape Depth Behind Speakers	
Soundscape Extension Into Room	
Imaging	
Fit And Finish	
Self Noise	
Value For The Money	

Specifications

Audio Research LS-28 Vacuum Tube Stereo Line Stage Preamplifier

Tube Complement: Four 6H30 dual triode

Frequency Response: +0/-3dB, 0.4Hz to 200kHz at rated output (Balanced, 200 kOhms load)

THD+Noise: Less than 0.007% at 2V RMS BAL output.

Noise: Less than -100dBv at max volume (103).

Dynamic Range: 122dB (AES17).

Crosstalk: -105dB

Gain Main Output: 18.5dB balanced output. (12.5dB SE output.) Record output: 0dB (Processor input: 0dB balanced out).

Input Impedance: 100 kOhms Balanced, 50K ohms SE. 8 Inputs - 4 balanced, 4 single-ended.

Output Impedance: 600 Ohms Balanced, 300 Ohms SE Main (2), 20 kOhms minimum load and 2000pF maximum capacitance. Outputs (3): 2 Main, 1 Record Out (XLR and RCA connectors).

Output Polarity: Non-inverting.

Maximum Input: 16 Volts RMS BAL, 8V RMS SE.

Rated Outputs: 2 Volts RMS (1V RMS SE) into 200K ohm balanced load (maximum balanced output capability is 17 Volts RMS at less than 0.5% THD at 1kHz).

Controls: Rotary volume selector (103 steps) and rotary input selector. Push buttons: Power, Menu, Enter, Mono, Invert, Mute

Power Supplies: Electronically regulated low and high voltage supplies. Automatic 45 sec. warm-up/brown-out mute. Line regulation better than 0.01%.

Dimensions: 19" x 6.5" x 13.7" (WxHxD)

Weight: 15.9 lbs.

Price: \$7500

VT80 Stereo Vacuum Tube Stereo Power Amplifier

Tube Compliment: Two matched pair KT120 power output, two 6H30 driver

Power Output : 75 watts per channel continuous from 20Hz to 20kHz. 1kHz total harmonic distortion typically 1% at 75 watts, below 0.05% at 1 watt. (Note that actual power output is dependent upon both line voltage and 'condition' i. e.: if power line has high distortion, maximum power will be affected adversely, although from a listening standpoint this is not very critical.)

Power Bandwidth: 7Hz to 60kHz (-3dB points).

Frequency Response: 0.7Hz to 80kHz (-3dB points @ 1 Watt).

Input Sensitivity: 1.4V RMS BAL for rated output. (25dB Bal gain into 8 Ohms.)

Input Impedance: 300 kOhms Balanced (150 kOhms SE)

Output Polarity: Non-inverting. Balanced input pin 2+ (IEC-268)

Output Taps: 4 and 8 Ohms

Output Regulation: Approximately 1.0dB 8 Ohm load to open circuit (Damping factor approximately 8)

Overall Negative Feedback: 15dB

Slew Rate: 10 Volts/microsecond

Rise Time: 4.0 microseconds

Channel Separation: 112dB

Hum & Noise: -84dBV no signal, 8 ohm tap

Signal to Noise: 112dB

Controls: Power on/off, auto shut-off on/defeat, Input BAL/SE, RS232, 12 Volt trigger

Dimensions: 19" x 10.33" x 18.45" (WxHxD)

Weight: 45.7 lbs.

Price: \$8000

Company Information

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