ARC AUDIO KS900.6

Text and Photos by **Dave MacKinnon (www.osmlabs.com)**

A satin black steel shroud covers the entire amp and bears the Arc Audio logo in machined aluminum atop center of the amp. The PAS guys refer to this as the Arc Belt Buckle... I swear, the amp will return to the office intact – if 'the buckle' is missing when it gets back to California, it wasn't my fault!

"Dynamics were very good, especially given the massive reserve of power the amp has on hand and its regulated power supply. Be it a kick drum or rim-shot, the amp kicked hard each and every time.

Is there an echo in here? Maybe I am having flashbacks? Perhaps it's Déjà vu? Oh, wait, I know what it is. I've recently tested a number of impressive products from the team at Arc Audio as they seem more than willing to get their latest amps into my hands these days. That being said, when it's an amplifier from Arc Audio, heck, they can send one each week if they want – there's lots of room in my trunk to install them permanently. I caught up with Fred Lynch of Arc Audio recently who was on tour with his new Canadian sales rep and distributor – Moe Rosenmeier of MR Acoustics Inc. in Richmond, BC. Known for never being empty-handed, our pal Fred brought with him a fresh new Kar Series KS900.6 six-channel amplifier as he met up with us for a nice Italian Dinner and delevery of the amplifier. (Thanks again for the dinner Frank!)

FEATURES

The KS900.6, like the KS300.4 I just finished testing are part of the new Kar Series from Arc Audio. The amp features the kind of non-descript styling that begs you to look at it for its features and performance, not for its all-around irrelevant bling-factor. This is a concept perhaps foreign to many of PAS' valued readers – but important nonetheless. A satin black steel shroud covers the entire amp and bears the Arc Audio logo in machined aluminum atop center of the amp. The PAS guys refer to this as the Arc Belt Buckle… I swear, the amp will return to the office intact – if 'the buckle' is missing when it gets back to California, it wasn't my fault!

Along the sides of the shroud are a series of holes. Air is ingested through these holes, runs across the high current devices, through the centrally located computer controlled cooling fan, then out the ends of the amp beneath the controls and connections. The main heat sink of the amp is finned across the bottom to further improve heat transfer. The heat sink is secured with Torx screws – very tidy.

They say a picture is worth a thousand words, so check out the picture of the left side end panel as you read this next part. Each of the six channels has its own independent gain control for the utmost of accuracy in terms of setting levels. There are of course six independent RCA input jacks, and an RJ45 jack for the provided remote level control for the sub channels. There are source select buttons for the rear and sub channels, letting you choose to feed them from their specified RCAs or from the front RCA inputs. The front and rear channels have a crossover function switch (off or high-pass from 50-550Hz) and a stereo or mono button. The sub channels have a bass boost control and an optional low-pass filter adjustable from 30 to 250Hz. There is also a crossover slope button. You can run the subs in stereo with a 12dB/Octave crossover slope or combine the signal from both channels and have a slope of 24dB/Octave. Here's where things get different, there is center channel control section. There is an on/off button and a crossover mode (Full/high-pass) and a crossover frequency control (adjustable from 50 to 550Hz).

Let's look at the possible uses of the amp given the availability of these controls. In its simplest mode, you have a 6 channel amp – you feed it six signals and it amplifies them. Enabling the crossover functions now negates the need for external signal processing and reduces installation complexity. You can of course do high-pass on the front and rear and low-pass on the sub channels, so a front, rear and sub system can be run from a source unit with as little as a single set of RCA's, thanks to the source select switches. Another configuration is to run the amp as a three-channel, bridging the front and rear channels to run left and right with nearly 200Wpc.

Another configuration, and one that is perhaps the coolest, is the ability to run this amp as a theatre amp. You can use one of the sub channels to operate a center channel speaker while the other does a sub. You can do this with the front and rear channels running front and rear speakers, or bridged to run just a single pair of speakers. If you need system diagrams, download the owner's manual from the new Arc Audio website at www.arcaudio.com and see pages 8 through 14.

The other end of the amp is home to the power and speaker connection terminal blocks. The power block will accept 4awg cables which are secured by Phillips head screws. The speaker block, home to a dozen connections will let you use 10awg cable and they are secured by hex head set screws. I prefer Phillips head set screws, but given the space constraints I understand the choice completely. The top row of connections are for the positive speaker wires while the extended bottom row are for the negative wires – another little 'difference' between this amp and all the other multi-channel amps I have seen. I like this concept – it keeps the wiring neat and tidy. There are four 25 Amp ATC fuses between the blocks.

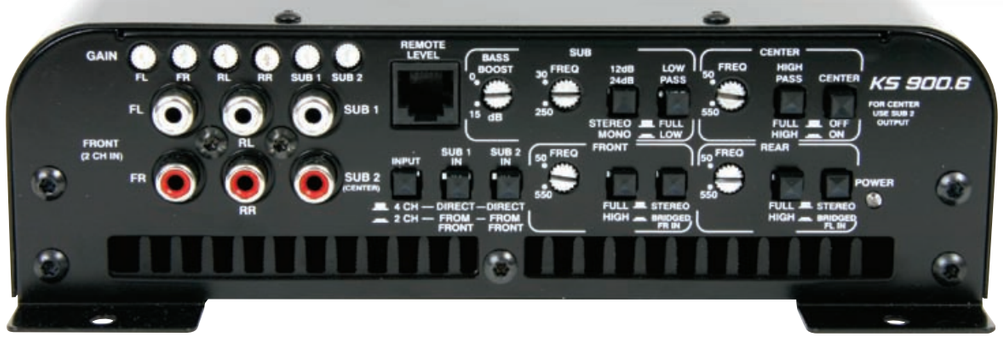
Inside the amplifier are some very interesting 'goings-ons'. The basics are that the amp features a high quality two sided circuit board and it is populated mostly by surface mount resistors, diodes and many ICs. There are some through-hole devices where size or power handing requires. The power supply capacitors and any other large devices are secured against vibration damage by adhesive. On the input from the 4awg power connections are five 6,800µF, 16VDC, 105˚F caps. There is a single torroidal transformer in this amp. It's far from normal though. It is a multi-tap unit that feeds both the four main channels as well as the subwoofer channels from the higher voltage tap. It appears as though the amp has a second power supply transformer, but this is in fact simply an inductor. Because the amplifier uses a fully regulated power supply, the output of the primary transformer needs to be filtered, so this inductor is part of that filter network. The front channels have four 2,400µF, 50VDC, 105˚F caps, while the subwoofer channel has another pair of the same for itself. Output devices are of course Sanken TIP 35C and 36C bipolar devices – essentially a trademark of Robert Zeff / Nikola Engineering design.

An interesting feature of the amplifiers design is the positioning of the power supply section relative to the output stage. These are located at one end of the amp and the other to help reduce the potential of noise (both electrical and physical in the form of vibration) being transferred from the power supply to the audio section. Arc Audio calls this concept M.I.N.E.R for Mechanical Isolation Noise Engineering Reduction. The best part is that it doesn't really make the amp more expensive to produce, but makes it perform better – that's smart thinking.

Arc Audio offers a 3 year warranty on this amplifier if it is purchased from and installed by an authorized Arc Audio dealer. If you decide to install it yourself, that warranty drops to 1 year. If you buy from an unauthorized dealer, well, don't do that. The provided owner's manual includes some really useful information that applies not only to this amp, but to all amplifiers in terms of wiring and how amps work. There are also lots of system diagrams as well as an error code chart for the advanced diagnostic system. This way, should the amp go into protection, you can find out why.

TESTING

Of course, the next step is to bring this amplifier to life on the test bench. I connected my new Kinetik power supplies and dummy load resistors and set to taking my measurements. Of course, all my measurements are taken at a 1% distortion level. I started with all six channels being run into a 4Ω load then moved to all channels at a 2Ω load. Figure 1 shows how the amp behaved. To put things in perspective, driven to clipping at a 4Ω load, the amp produced



ARC AUDIO KS900.6

a total of 581.4 Watts. When loaded down to 2Ω, total output increased to an impressive 926.6W. The amplifier remained well behaved during testing and didn't show any weird ringing when pushed into clipping. Running wide open, you are going to need to feed this amp well – 117A is a fair bit of current. I also tested the amp with all its outputs bridged into 4Ω loads. If you need to drive three speakers with some serious power, this is the configuration for you – as it will produce just about 2 x 200W and just over 500W mono. More than enough for any daily driver and music enthusiasts

Arc rates the amplifier as 4x60 + 2x155 at 4Ω and the amp was easily able to match or exceed these ratings. Up next was frequency response testing. I measured both -1 dB and -3dB response on the amp. Frequency response was impressive on the bottom end, matching some of the best amps I have reviewed with a -3dB point below 1Hz. The -3dB point on the top end was very good at 80kHz. Frequency response within 1dB was 2Hz to 36.6kHz – very impressive, especially on the bottom end. Figure 2 shows the amplifiers frequency response taken from one of the main channels.

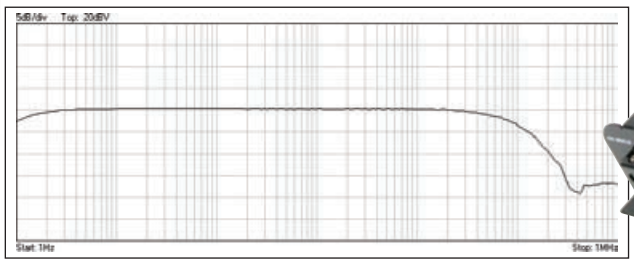
Figure 1.

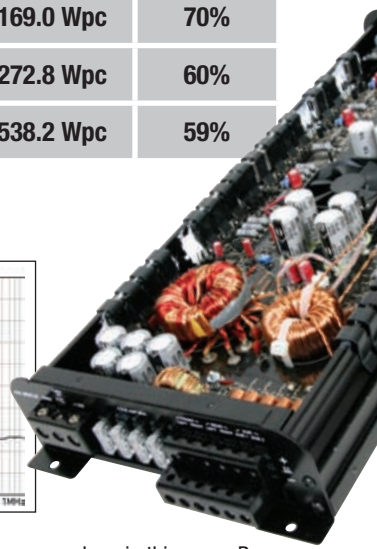
POWER

LOAD	SUPPY	SUPPY CURRENT	MAIN CHANNEL POWER	SUB CHANNEL POWER	EFFICIENCY
4Ωx6	13.42 V	62 A	60.8 Wpc	169.0 Wpc	70%
2Ωx6	13.18 V	117 A	95.2 Wpc	272.8 Wpc	60%
4Ωx3	13.18 V	118 A	191.8 WPc	538.2 Wpc	59%

Figure 2.

KS900 FREQUENCY RESPONSE





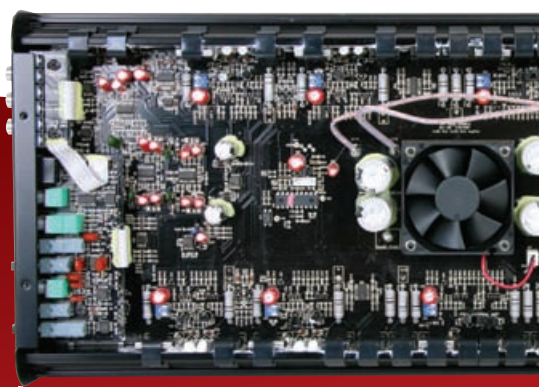
LISTENING

I set the up KS900.6 into my reference system comprising a DRZ9255 source unit and a pair of LSi9 bookshelf speakers. I configured the KS900.6 to run my speakers in a bridged configuration as though it was a going to be used as a three-channel amp.

In terms of a soundstage, the KS900.6 did a great job in placing instruments laterally and the focus would be considered good. There wasn't a huge sense of depth, but the performers were discernable as being in front of our behind one-another.

I would call the tonal balance of this amplifier antiseptic. The relative balance of each frequency range resulted in very flat frequency response with these speakers in this room. Bass instruments such as kettle drums or organ notes were very realistic. Female vocals, the likes of Jennifer Warnes and Holly Cole were easy to listen to and neutral. This amp offers excellent low frequency extension – something that truly appeals to me.

Dynamics were very good, especially given the massive reserve of power the amp has on hand and its regulated power supply. Be it a kick drum or rim-shot, the amp kicked hard each and every time.



CONCLUSION

What is the purpose of an amplifier? It's very simple – to amplify your music. Yes, you could spend your life driving around listening to your music powered only by the paltry little amplifier IC that's built in to your radio? It's analogous to a Ferrari shod with four spare tires – it's just not any fun.

When you choose an amplifier for your system, there are a lot of considerations – performance, price and flexibility. I have no quandary with the performance of this amplifier in any respect – it really delivers. In terms of flexibility, I have never been witness to an amp that can be used in so many ways. No matter what configuration you choose for your system, this amplifier can always be a part of it. From the simplest of sub/satellite systems to a full blown multimedia system with center channel, this amp can do it all, and everything in between. That also means that you aren't going to need to spend more money on external hardware like crossovers or center channel processors or run the risk of adding noise to the system through additional signal path connections or grounding problems. Further, you don't need to spend money on additional installation time or accessories. Power wire, speaker wire and a single set of RCAs are all you need to get this amp going – more money in your pocket! There are no flashy cosmetics – something I also like.

Since I first laid eyes on this amp back in late 2007, (and now being mid-2008) I would have to say that this amp would win my (non-existent) 2007 amplifier of the year award based on its performance and feature set. How's that for a conclusion? PAS

ARC AUDIO

ARC Audio
4719 Green Leaf Cr. #4
Modesto CA, 95356
(866) 258-0288
www.arcaudio.com