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70 miles from nowhere, **Audio DIY** in the Heartland

by *Bill Epstein*

Aqvox Phono2CI

September 2007



SPECIFICATIONS:

RCA- Input-Sensitivity: 49dB- 68dB / 0,4-12mVrms 1kHz, 1Vrms out XLR

RCA-Input-Impedance: 47k Ω , switchable to 1k Ω and 100 Ω

RCA-Input-Capacity: 47pF internal, switchable +47pF, +100pF, +220pF, +470pF

XLR-Current-Input-Sensitivity: 55db - 75db (suits for cartridges from 0,15mV to over 2,5mV)

XLR-Current-Input-Impedance: 10 Ω (The **sensitivity of the XLR** Current-Amplification-Input is depending on Voltage and Impedance of the Moving Coil Cartridge. The CI-Input fits to a wide range of MC's, including High-Output MC's as well as Ultra-Ultra Low-Output MC's.)

Equalisation-Filter: RIAA with Neumann time constant +/- 0,25 dB (50kHz roll-off)

Subsonic-Filter: -9dB / 10 Hz, -18 dB / 5 Hz, -48 dB / 2 Hz

THD + Noise: 1V out-XLR 0.009% at min. 0.04% at max. MM-RCA-In,

1V out-XLR 0.019% at min. 0.09% at max. MC-RCA-In

Signal-Noise Ratio (S/N) IHF-A: 1V-Out-XLR-MM-RCA-In 76dB Flat, 84dBA at min./ 63dB Flat, 71dBA at max.*
1V-Out-XLR-MC-RCA-In 69dB Flat, 78dBA at min./ 57dB Flat, 65dBA at max.*

Power consumption: 5 W

Dimensions (w / h / d): 435 x 59 x 290 mm

Weight: 2.8 kg

Accessory: Alu-rackmounts for 19"-Standard-Racks, available in silver color

MSRP: \$1,400 USD

MANUFACTURER:

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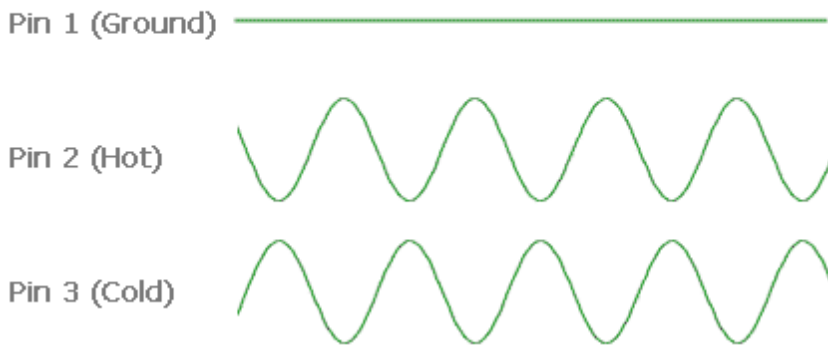
I welcomed the Phono 2 CI review sample shortly after my new KAB Technics SL-1210M5G turntable arrived. It's not that I had fallen out of love with my long-time Ariston mate; I simply wanted to cheat on her. Or as the guy who's caught with a hooker by his wife of many years said, "you always tell me I'm good in bed, I just wanted to get a professional opinion"! That's just what I did for about a month, alternating the 2 tables depending on my mood, or the music, or what I wanted to know about my cartridge or phono stage.

Just as the various amplifiers I've reviewed over the past two years have taught me about the strengths and weaknesses of my own equipment, the Technics had a lot to teach about the Ariston in terms of bass definition, background noise and detail retrieval. Musical as it is, it's still a 30 year-old unit. The character of the newly arrived Aqvox Phono 2 CI put an end to the affair: I sent the SME arm to a friend; and the RD-11 Superieur table went to a newly smitten vinylphile.

Designed in Hamburg, Germany and built in China, the Phono 2 CI is a sleekly styled solid-state moving coil/moving magnet unit with the usual range of selectable input parameters along with a few unique features that really set it apart. And not just one, but also 2 softly glowing blue LEDs. I love softly glowing blue LEDs. Oh, and there's a teeny red one, too. Seriously, though, to take advantage of all the features, I had the unit set sideways most of the time to better access the rear panel and I had nearly forgotten the lights until just before I began to write.

What mainly sets the Aqvox (pronounced accuvox) apart from other phono stages at its price point is that it is a fully balanced design. Few would argue that balanced circuits inherently sound better than single-ended, but there is no denying that they have the potential to operate more quietly in terms of common mode noise rejection while at the same time offering 6dB of extra gain. The reason for this is that balanced wiring uses 2 conductors 180 degrees out of phase with each, i.e. when the positive wave is rising, the negative signal wave is falling in lock-step with each other (see pin 2 and pin 3) as in the diagram below.

Balanced Audio Signal



Any signal that is not 180 degrees out of phase is seen by the amplifiers filter circuit as noise and is cancelled out. All you get is signal. This “common mode” noise rejection is often stated in amplifier specifications and now you know why.

It seems to me that there should be little doubt that a phono stage that has to receive and magnify a signal measured as low as .25 millivolts would audibly benefit from a balanced connection, especially when you realize that a moving coil phono cartridge has a balanced output. This information was as new to me as the Aqvox itself and made me wonder why all phono cables aren't balanced. The fact is, almost none are.



So the big story about the Phono 2 Ci is that it has balanced (XLR) as well as single-ended (RCA) inputs and outputs. The really big news yet is that when engaged, the balanced input over-rides all the gain and loading adjustments, in effect removing them from the circuit and leaving just the signal circuitry. Simpler is better, right? If you stick with single-ended, your RCA plug will give you adjustments in gain of 0, +6 and +20 dB, loading (resistance) for 100, 1000 and 47,000 Ohms as well as 0, 47, 100, 220 and 470 pico-Farads of capacitance. This latter adjustment is meant exclusively for moving magnet cartridges.

Want more? You got it. Ever have to pull the ground pin from an AC plug so you can “lift” the ground or switch polarity to eliminate hum? Doing that at the wall receptacle is also dangerous and dumb. The Aqvox solution: The Phono 2 Ci has a ground “lift” switch, which I found really useful. Besides that, there is a switchable subsonic filter. Finally, there are gain controls for each channel. Even though they add a potentiometer to the signal path, any degradation they might cause to the signal is outweighed, in my opinion, by the ability to better match the output to the subsequent chain of amplification. My amplifiers run the gamut from less than 2 to over 200 watts, so I appreciate this feature. There is an audible benefit to showing an amplifier a signal strength it's comfortable with.

Susanne Candeias, founder/owner of Aqvox and head of the team of industrial design and concept of the Phono 2Ci, is obviously a moving-coil cartridge, balanced-signal gal. The XLR over-ride tells us that and the fact that he provides RCA to XLR adapters so you can use the over-ride without re-wiring your tonearm. All the above meant that I had to sample, not just how the Phono 2 Ci played music, but how it did so in three different configurations. You think this reviewer gig is all free gear and beer? Uh-uh!

A new phono cartridge sample arrived within days of the 2 Ci, so at least I was able to break in both at the same time, putting 40 hours on them before I ever sat down in my listening chair. During this period of flipping album sides 119 times (!) I exercised both the RCA and XLR inputs with and without the supplied

adapters. Toward the end of this lengthy period, I acquired some really great new and old vinyl that I put to good use for the listening which made the wait worthwhile. I recall that someone, Carl Weber perhaps, said that Western Civilisation was based on a system of delayed rewards. Few believe that anymore which is why, I suppose, that it is crashing down around us.

As mentioned, I listened to the 2 CI with both the Ariston and Technics decks, using both my accustomed Dynavector 10x5 and the newly arrived Benz-Micro Ace L. The superior resolution of the 2CI showed that the Ariston was over matched and that the Dynavector had poor synergy with the Technics. The 10x5 was a champ at retrieving the air and detail the Ariston would have missed but with the more accurate SL-1210, it was



too much of a good thing. Also, the high output of the 10x5, obviously, didn't give me the ability to appreciate the moving coil gain of the Phono 2 CI. I did all the subsequent listening with the Technics/Benz combination.

Our local quarterly record show coincided with the 40-hour mark of break-in and I hurried home to clean and play my acquisitions. There were two real stand-outs from this group, *How Long Has This Been Going On*; Sarah Vaughan with Oscar Peterson, Joe Pass, Louis Bellson and Ray Brown, and, *Me And You*; Count Basie and His Orchestra. Using the RCA inputs, I found that the Sarah Vaughan wasn't just producing notes but the illusion of real singing and playing in a well-defined space. The Phono 2 CI put excellent separation between the musicians, displayed the body as well as the strings of Ray Brown's Bass and moved me to write a note that 'it sounds like Joe Pass amp is really sitting on the floor'. Good detail and soundstage, undoubtedly. On the *Basie*, ever the soft touch for a good trombone I especially noted the tonality of Booty Wood. Seems like the Pablo Label never lets you down. A few other albums were in constant play as well, highlighted by my Top 5 Fave *Brothers In Arms* Warner re-issue and newly arrived *All The Road Running* and the Reiner/CSO Classic re-issue of Prokofieff; *Lt. Kije* and Stravinsky; *Song Of The Nightingale*.

After a few weeks of single-ended and *ersatz* balanced play of the Phono 2 CI, my overall impression was that the music it produced was enjoyable and the control flexibility a treat; but I had reservations about a somewhat grainy treble and a propensity to sacrifice emotion for detail. Everyone should be aware that I'm a tube guy and prefer errors on the side of richness of tone over those of bright lights and sharp relief.

It was finally time to re-wire the turntable, a job I had been dreading, to fully balanced mode, even though I knew it had to be done to achieve the full performance of the unit. First, there was the phono cable. The stock Technics cable, even with the M5G upgrade, was a cheesy-looking thing and I knew it had to go, but there are 24 screws on the bottom plate and I would have to empty the silicone damping trough. Then the expense. I wasn't about to put a good pair of Vampires or Neutriks on the stock cable so that meant either re-terminating one of my Heartlands or purchasing new. I got lucky on Audiogon and found a show demo 3' Vampire CCC-II stranded and XLR terminated cable for \$99. Cryo'd, no less, from a company called [Cryo-Parts and Locus Design](#). (If you'd like a pair for yourself, Lee at Cryo-Parts says he'll make them available at the same price. Just mention you read about it on Dagogo.)



A week or so later, I had removed the female ends of the cable and soldered the bare wire to the circuit board that terminates the arm cable (an easy job), put the bottom back on the deck and re-filled the damping trough. I really wanted to pull the arm cable and replace it, too, but never having done it before I chose the coward's way out and left it alone. The cable, by the way, was easy to work with, quickly giving up it's double foil and woven shield and, best of all, already broken in.

I began to play the same albums again, and I found myself hearing the Aqvox Phono 2 CI for the first time. Out of an eerily silent background came all the positive attributes I had noticed before; but the grain and over-etched contrasts were gone. Looking back at my listening notes for these sessions, there aren't any references to detail, imaging or transients but instead, references to the naturalness of Sarah's voice, the incredible technique and melodic line of Ray Brown, 'not a hair out of place in the arrangements of Ernie Wilkins' and 'listen to those muted trumpets'. I noted how the tone of the CSO Woodwinds blended with the rhythmic, almost percussive scoring of the Stravinsky and was struck by the contrast between Mark Knopfler's voice, then and now, from *Across The River* in 1969 to *Donkey Town*, 35 years later.

As a bonus, I unexpectedly received a KR Audio 1610 SXI amplifier for a short stay during this time. All the above listening was done with my own single-ended, 2-watt 45 amplifier. The 50-watt-per-channel Kronzilla tubes just made good things better. I've never heard better bass or dynamics, not even from the KR VA-340 last year. When I say better bass, I'm not just talking about the individual notes or 'slam' but the pitch and tone and resonance of them. Even slapped electric bass strings resonated in a way no other amp has managed. The XLH Ref-1812 speakers with their 18" JBL woofers have never been so happy. In fact, I would have to say that the Phono 2CI/ARC LS-1/KR SXI/XLH 1812 combination produced the best musical experience I have ever heard, including the best at the recent Lone Star Audio Fest.

This should absolutely delight Mrs. Susanne Candeias. Here Aqvox has designed a phono pre-amplifier with excellent control flexibility to a relatively low price point that has the ability to drive \$5000 and \$15,000 amplifiers in a way that shows off their best attributes. The way the Aqvox Phono 2CI delivers music through the finest associated components makes it a serious contender for many vinyl lovers.

MANUFACTURER'S COMMENT:

Manufacturer's Comment:

On behalf of AQVOX , I would like to thank Bill Epstein for this review, and I would like to thank Constantine Soo for letting me have some final words.

Bill spent a lot of time and effort to write the interesting review, and to listen to the AQVOX Phonostage in different configurations. He stepped into the core technology of the Phono2Ci; the balanced current amplification for MC-cartridges and explained in an easy to understand way via the balanced principle.

A word on Bill's finding in paragraph 8, after the "Balanced Audio Signal" graph:

"Even though they add a potentiometer to the signal path, any degradation they might cause to the signal is outweighed, in my opinion, by the ability to better match the output to the subsequent chain of amplification. My amplifiers run the gamut from less than 2 to over 200 watts, so I appreciate this feature. There is an audible benefit to showing an amplifier a signal strength it's comfortable with."

The potentiometers do not drive the outputs but the inputs. They adjust the gain factor of the first amplification stage and are not directly in the input-signal path. This is to match the best working range of the transistors (where the transistors sound best) with the output current of the MM or MC

cartridge or the different recording levels of records (eg. Maxi or Long LP), and to equalize channel level-differences of cartridges.

Audiophiles can use GAIN to find the optimum Gain settings for every cartridge. Note that too low a gain affects the dynamics and one that's too high brings distortions. Correct setting is easy:

1. Take a LP with very good vocal recording at average/normal recording level;
2. Tune in with big steps through the full (min. to max.) gain range with the front panel GAIN knobs. Experiment with the amplification factor when set to high and low;
3. Best sound is where vocals are most dimensional in the room and the soundstage has the most generous dimensions in all directions.

I would also like to add some delicate tech notes in the following.

There are some good balanced phonostages in the market, but the AQVOX Phonostage is not only balanced (mass free balanced or floating balanced, to use the right terms), but is a balanced CURRENT amplifier. This is a very rarely used amplification technology for phonostages, albeit a MC-cartridge is rather a current generator than a voltage generator. Taking this as a fact, a current amplifier matches far better with a current generator than any voltage amplifier can.

Just remember:

MC-cartridges are balanced current generators

MM-cartridges are voltage generators

Another advantage of this current amplifier is that even bright-sounding MC-cartridges will become more natural-sounding going through it. This is because the AQVOX Phono2Ci XLR-current input also has the so-called short-cut measurement, and has just around 10-ohms. This shortcut dampens in a no-loss manner for MC-cartridges that tend to resonate.

I want to state, that the AQVOX XLR-current amp input has under no conditions any differential input offset. This means absolute safety for the MC-cartridge.

Within a short time the Phono2Ci found its way not only into the racks of some record-cutting lathes of audiophile mastering, or audio restoration studios, but won many vinyl fans around the globe. One of the reasons is perhaps that the AQVOX development team dug deep into the schematic diagrams of cutting amplifiers which are driving the cutter heads of record-cutting machines. There, we found out that a filter with a roll-off between 30kHz and 60kHz was installed in the cutting amplifiers as protection for the expensive cutter head. So the RIAA in the AQVOX Phonostage is not only the RIAA on the paper, it is the real world RIAA curve which is cut into the grooves of the lacquerfoil or copperplate in case of a DMM (Direct Metal



Mastering) machine. The implementation of this cutting amp filter (time constant) into the AQVOX RIAA curve brings a little more level and a more correct phase replay above 10kHz.

(Right: AQVOX Neumann cutting lathe
©Aqvox. Used by permission.)



Here is a hint for Phono2Ci customers:

We also learned that the cables between turntable and the XLR input of the Phono2Ci are very important.

If a regular RCA cable is used for balanced input, this can cause hum, noise or radio. The better the screening of the RCA cable, the more occurrences of disturbances. Therefore, a balanced cable is strongly recommended. That means two conductors per channel with or without screen.

AQVOX wishes Dagogo a growing readership.

Keep on with the good work.

Norman Lubke
Sales & Tech Service
AQVOX Audio

Please send us your feedback: editor@dagogo.com

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