

dCS Lina Headphone Amplifier Review

By Marcus | August 27, 2022



DCS LINA HEADPHONE AMPLIFIER REVIEW

The dCS Lina headphone amplifier is the perfect high-performing partner to its siblings. It's tastefully neutral, very revealing and with enough power to drive every headphone I tested with it. It manages to combine reference level accuracy with an almost perfect harmonic balance to prevent this from ever sounding analytical.

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9.4

PROS

- + Exquisite level of resolution
- + Plenty of power when needed
- + Modern minimalist styling

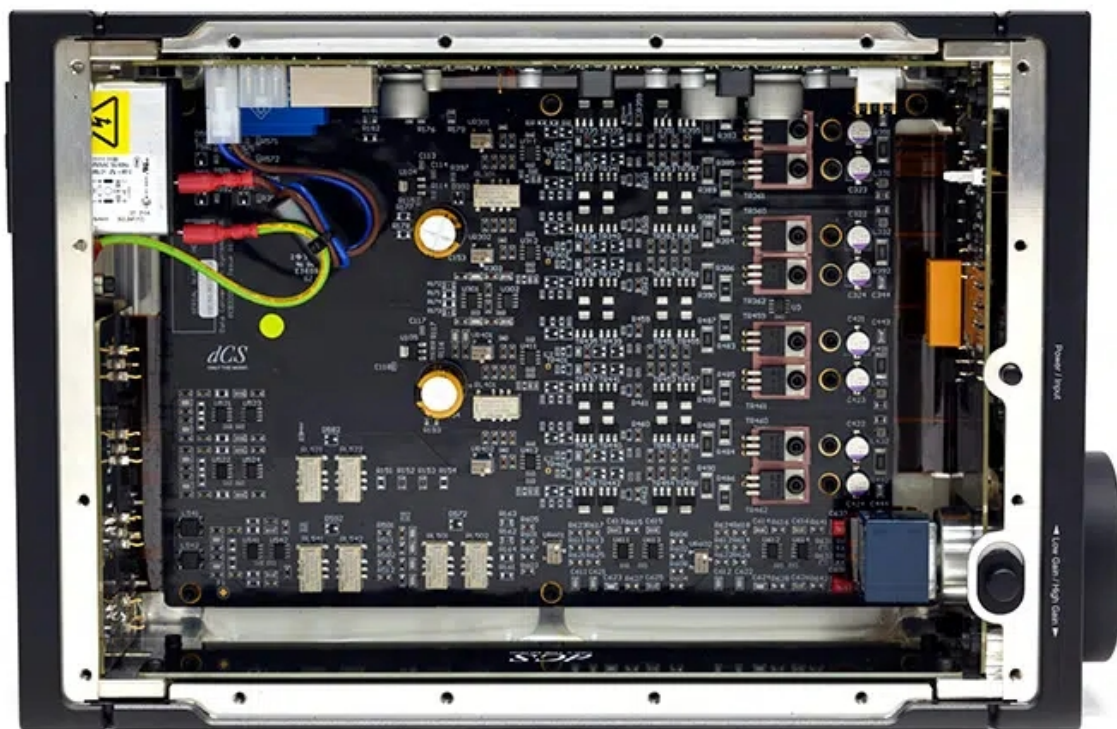
CONS

- No Pre-amp
- Not quite IEM friendly

9.4

Reader's Score

Was it to be expected? I mean the Bartok was an incredible bit of gear and rightly earned our Top Gear Award for 2020 so I guess it is no surprise that dCS decided this was a good moment to go all in, boots and all, and embrace our vibrant headphone community. The resulting outcome? The modular, or stackable, Lina system comprising of a solid-state headphone amplifier, a DAC, and a separate Master Clock. Together, they make a whole, hence the singular name but can also be purchased separately. Which is a good thing because dCS are known to be ultra high-end in their pitch and these beautifully designed units have a price to match. Today's in-depth is on the latter, the Lina headphone amplifier and dCS's first ever dedicated analog amplifier, which luckily enough, is dedicated to us, the humble headphone user.



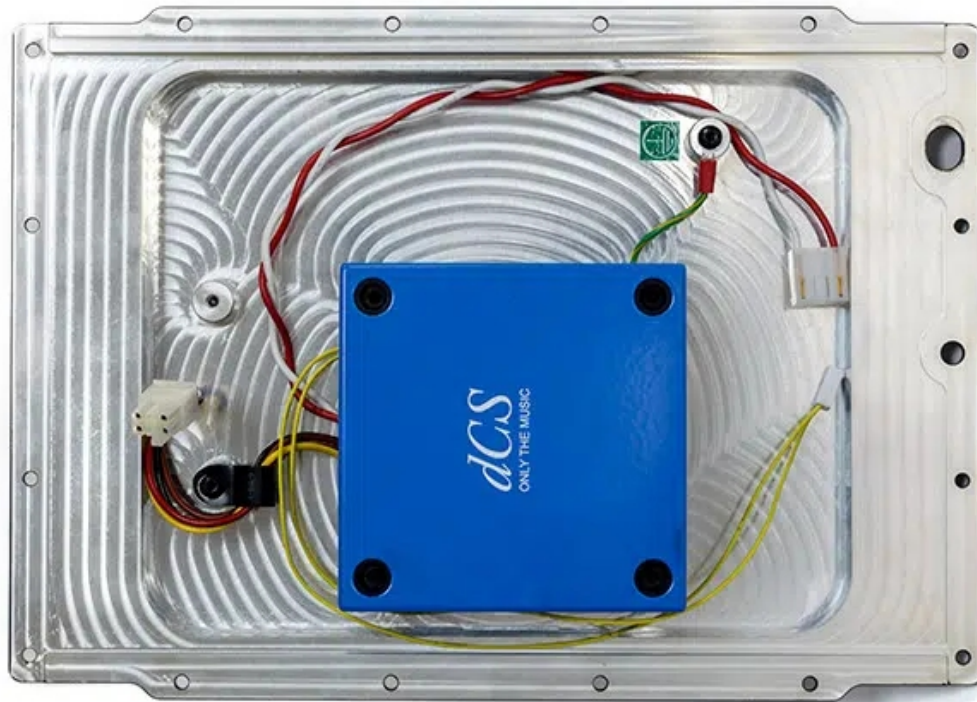
Tech Highlights /Topology

The Lina headphone amplifier is a pure analog solid state Class AB design. This is not a 'chop suey' of the Bartok integrated amplifier which operated on a Class A principle and there is good reason for that. Bartok's integrated approach and the use of a Class A topology gave it a fairly broad scope for headphones but its use case goes beyond that with its preamp and integrated DAC functionality. This time around, there is no pre-amp, it's all headphones, and since the market is saturated with all types of headphones the scope has to be widened even further. This amp has to cope with anything from a modest IEM to a higher-powered planar or a high-load dynamic driver.

Class AB

To do that a couple of important changes were implemented that moved the Lina amplifier away from the Bartok design. The first was a switch to Class AB primarily out of a drive for better efficiency levels, cooler operation, and to improve distortion performance.

Class AB's push and pull resistor (positive, negative), topology allows for a better balance between smaller current outputs in Class A and higher current outputs in Class B but because you have a crossover point typically called the 'dead zone' the potential for error and distortion is higher than operating in a single Class A. To reduce the distortion potential dCS has developed a DC servo system with a unique error correction technique, which allows the Lina amplifier to maintain a clean signal path and correct incoming voltages at the source. Ideally, you get the performance benefits of a Class A system, while keeping also keeping heat and power usage under control.



Current/Voltage Balancing

The second change in approach was dealing with power requirements. Not just in more mW as you would read it in the tech specs, but rather the potential power output from balancing the voltage and current limits that are available to allow for optimal performances for everything including planar drivers that often require both in high quantities. To that end, the Lina amp current limit and the voltage rails are now considerably higher than that of the Bartok design. That means lower impedance headphones will get more power than what was available on the Bartok amp as well as gear with higher rated loads.

Performance Numbers

The Lina amplifier is both balanced and single-ended with a headline figure of 2W into 30Ω balanced which is higher than the 1.4W into 32Ω rating of the Bartok. That is further supported by a dual gain control system with a 10.5dB swing. You also get a significant boost on the very highest measured 300Ω load rating of 0.48W balanced compared to Bartok's 0.15W on the equivalent balanced load. So, even at a rudimentary level, the Lina amplifier is the more powerful of the two units for driving headphones at those key milestones. Interestingly, the Lina amplifier current and voltage balance are actually optimal at around 60Ω, quite possibly around the same marker that was also ideal for the Bartok. What that means is that the 2W 30Ω rating should not be translated as its peak power rating since below 60Ω, voltage gives way to current in terms of bias. In actual fact, the amplifier peaks at just under 4.5W balanced at around 60Ω which is right where the Susvara impedance rating is. Also, the amplifier achieves its full output voltage swing with any headphone above 45Ω, so with 45-60Ω or typical planar ratings, the power is optimized. It's not just power though for optimal driving, and we have to go back again to the pitch of coping with the widest range of headgear possible, more so than the Bartok. To that end, the Lina also has a low output impedance level of < 0.090Ω which will mean sensitive gear is far more resistant to impedance skew.

Design

The Lina Amplifier styling is a mix of a robust machined aluminum chassis with a matte black finished minimalist low-profile fascia dominated by a huge Cyrus Audio-style potentiometer wheel. It weighs in at a 7.5KG so much lighter than the bigger twin toroidal-packed Bartok but still might surprise you with its heft when lifting it out of its packaging. I do appreciate that



matte back finishes also on the dial which allows it to retain a smooth finish but still feels grippy at the same time when in use. Though the design language has some similarities with dCS's higher-end gear including the Bartok, it does nevertheless, stand out on its own with its elongated rather than wide body form factor and the lack of LCD given its analog design. That 'shoebox' style is surprisingly compact giving you some options in terms of racking and since it's a mirror of the form factor from the accompanying Lina DAC and Master Clock you can stack all 3 on top of each other if you so wish. I suspect dCS had that in mind because the stabilizing system underneath is very attractively designed to create an illusion of separation between all 3 units when stacked, (or the rack floor if singular). Instead of flat feet or the traditional pillar stabilizer design, it is a curved long body design with the feet discreetly positioned at each internal corner. It keeps everything very steady and at the same time keeps the smooth design floor completely uninterrupted.

I/O /Front Panel

You have 5 I/O on the front panel including the customized RK Alps RK271 in a rheostat mode for current control. There are 4 dedicated XLR and SE outputs with a choice of balanced 4-pin XLR, 6.35mm SE to the far left side, and in between a dual 3-pin XLR for left/right balanced output connections. Sadly, there is no 4.4mm balanced output which might have been useful for more modern output connections. Chiefly IEM users who wish to go balanced though these days headphones can and do come with balanced 4.4mm outputs. One thing you will have to get used to for the Lina design application is the lack of labeling on the front fascia meaning you will have to have a degree of familiarity with what each output offers or alternatively read the manual if you do not. I presume that is in keeping with that minimalist monotone design language. Because of the minimalist design, you might also miss the two very discreetly positioned buttons on the underside of the front fascia. These are positioned centrally for powering up the unit and selecting the input source and to the far right under the pot for gain selection. Note, that power control is also dependent on a master switch located at the rear beside the power socket.

Rear Panel

One other major difference going from the Bartok to the Lina is the addition of analog inputs to receive a signal from either the Lina DAC or a 3rd party DAC of your choice. Here, again, there is a unique choice in the performance with not one, but two different types of input for balance called buffered and unbuffered. The difference lies between their respective impedance levels with the unbuffered balanced XLR rated a lot lower at 16k Ω compared to the buffered equivalent of 96k Ω ,



(SE is 48k Ω consistent). The unbuffered and more demanding balanced XLR input is intended specifically for pairing with the Lina DAC. The buffered XLR input is for pairing with different 3rd party audio sources that may have a lower voltage output and typically requires a higher impedance rating. You will know which channel is in use with a small LED light status change on the front panel. Blue will denote the buffered balanced channel in use and magenta meaning unbuffered SE is being used. A further white LED lights up when using the unbuffered balanced output of the Lina amp.



Controls

The Lina amplifier is entirely analog with nothing in the way of remote control capability in its own right. That means if you buy the amplifier alone you will have to go back and forth for volume control, power, and input source selection which might be a bummer for those with 3m headphone setups and comfortable reclining chairs. On the flip side, the potentiometer on the far right of the front panel is just superbly smooth and even-handed in delivering an ever-increasing amount of current to whatever headphone you have jacked in. I am not detecting any channel imbalance either, even at very low volume levels. When integrated with the Lina DAC you do get some indirect remote control with built-in RJ45 ports on the rear panel which operates as a remote power link system when hooked up to the DAC. dCS does supply the required RJ45 terminated cables so I wouldn't panic if you think you need to buy additional ethernet wiring.

Packaging & Accessories

The Lina amplifier comes in an absolute beast of a retail box. It is much bigger than the amplifier itself and primarily with an intent to provide a rock-solid shipping experience to reduce the potential for damage during transit. Given its SRP, the less return due to damage the better the customer experience but it also goes some way towards satisfying the expectation bias that a premium purchase should come in a premium packaging experience. Outside is a fairly standard brown box experience but slip that off you get a two-piece dCS branded black container that lifts off to give you a very densely foam padded internal layout with an attractive leather pouch front and center containing your user guide and a dCS community pamphlet.



Accessories

The actual unit is about a foot deep into that foam layering and underneath the unit itself, you have another layer with recessed bays and all the accessories individually inserted into each bay. The accessories included are somewhat frugal for the Lina amplifier but a bit more comprehensive for the DAC. You get a power cord and two RJ45 power link cables. I would have liked to have seen a set of dual RCA or DUAL XLR in there also to get it operating out of the box right away. The dual XLR is something you get with the Lina DAC.

Sound Impressions

All impressions were completed using the dCS Lina DAC and Master Clock with a selection of headphones including the Abyss Headphones Diana TC, HIFIMAN's Susvara, the Audeze LCD-5, and the T+A Solitaire P.

Summary

The dCS Lina headphone amplifier is an inherently neutral-sounding but energetic performer able to perfectly capture an outstanding level of resolution from both siblings, the DAC, and the Master clock. It also has a world-class level of transparency allowing you to pick up nuanced changes from source swaps or even just from turning the Clock on and off. That transparency, in turn, is delivered with superb levels of dynamic range and in a manner that will allow almost any headphone to remain true to its own tuning. It is different from the Bartok, very different. In part that comes from the increased current limit and better balancing with its voltage potential for demanding planar headphones such as the Susvara. The other factor is simply the tuning with its differing emphasis and Class AB heritage. It is punchier, more dynamic sounding, and perhaps slightly more upfront and vivid through the mids and highs. The sub-bass performance with difficult-to-please headphones such as the Dan Clark Audio Stealth was mesmerizing and a night and day difference from the likes of the Chord Electronics Hugo TT2 which felt almost cut-off sub-100Hz. The staging depth is breathtaking at times but not just a two-dimensional balance between depth and highs but also behind and around the vocalist at the same time. I say this in regard to the Master Clock in particular which fleshed out the detail, separation, and layering just beautifully adding some

very high levels of complexity that the Lina headphone amplifier picked up on right away. If you have a headphone known for speed and articulation the Lina amplifier, (with DAC and Clock), will give you some very rewarding results.

Timbre

No doubt the coloration of the Lina amplifier is decidedly neutral with a familiar level of solid-state energy, particularly on the lows where the fundamental can be very strong and punchy when called upon. However, it's not neutral to bright unless you are using a bright headphone or source, to begin with. It is a more revealing amplifier than the Bartok in a way and lacks an overt coloration to disguise the quality of your music but at the same time, it does respond beautifully well to bring out the color of your source if so required. For



example, with the Lina DAC and Master Clock, this is a vivid tonal quality, very accurate with an impressively accurate harmonic balance. There is just enough treble to keep percussion energy in your mind without tipping it into sibilance or splashiness and plenty of 'reach' down below to add authority to instruments when required. Alternatively, with something like the Holo Audio Spring 2 Wildism R2R DAC behind it's a more relaxed-sounding affair with a juicier vocal delivery but slightly less bass punch and depth to go along with it. The decay, on the whole, is slightly shorter than the Bartok setup and that was coming from a test with both amps powered by the Bartok DAC. What that does for me is to enhance the perception of clarity and space or simply an excellent level of note control therein. The Lina amplifier does lack a little of that familiar warmth from the Bartok tuning which offers a denser or richer sounding low-end. This is a more reference delivery to my ear with a more precise or detail-orientated approach to its performance. When called upon though, the dynamics of the bass Lina sub-bass delivery can often sound more dramatic.

Technical

Often the perception of good dynamic range will come from just how well the amplifier drives a headphone good enough to reproduce it. Again, going back to the Susvara I never felt at any time there was a dynamic range gap between amplifiers that have stronger output power on paper such as the brilliant Feliks Audio Envy. At the same time, with headphones such as the Abyss Diana TC, this was one of those rare combinations that sounded equally as involving at lower volumes. I sometimes tend to push up the volume to create a stronger sense of immersion but not this time. I didn't miss a single bit of minute detail with pairings such as this. Now as for the staging 'form', I would call this one somewhat neutral in imaging though contextually it feels more forward and lively compared to the Bartok amplifier's own staging properties, even when sharing the same DAC. Doubly so with the Master Clock which lifts the whole system into almost 'God Tier' for articulating detail in such a complex and layered manner. Performances like this make me want to try systems like the Rossini even more if only the wallet would allow it. I did say somewhat neutral because for me the low-end can sound righteously bombastic below the mid-bass punch when called upon and paired with headphones that are capable of picking up on that. I should caution that this is not a dense fulsome low-end like the Envy or the Bartok but the extension and clarity below 80Hz on most headphones were more impressive for me. If you have a headphone with a quality transient response performance the Lina amplifier is the perfect match for this type of sub-bass dynamic.

Synergy

Much has been or will be made of the synergy between the different Lina components, not least the DAC and amplifier combined with the Master Clock pairing. However, given the price point and the fact you can buy them separately, it is not a given someone who will buy the amp will also buy the matching DAC. So, how then does the amplifier perform with 3rd party pairings which by default will use the unbuffered higher impedance input? I tested three including the R2R Holo Audio Spring

2 Wildism Edition and dCS's own Bartok 2.0 Ring DAC using a 6V output, (unbuffered), just to get a flavor of what each could bring to the Lina amplifier.

Lina DAC or Bartok DAC?

For this test, we used the LCD-5 as our main headgear. The differences are there though sometimes subtle rather than stark given both are drawn from the same Ring DAC architecture. The Bartok DAC brings a slightly smoother flavor to the Lina amp compared to the Lina DAC. You hear it in percussion splashes as well as the overall bass density from the LCD-5. The Bartok carries a bit more warmth and softens the note's leading edges giving it a very natural tone with a longer decay. The Lina DAC delivers a more precise high-energy neutral tone but a drier high-frequency tuning. With percussion hits lingering a little less it can create a perception of heightened clarity and more space though it lacks the warmth of the Bartok tuning. It does punch harder though and has a bit more 'drive' than its older sibling. All that changes with the Master Clock turned on and I suspect this is where the Lina DAC as a source becomes the next level for me compared to using the Bartok DAC. Everything becomes more vivid sounding and more holographic also, There is improved separation, especially on the bass layering and impact. Also, vocal imaging comes to the fore, much easier for the LCD-5 to pick out the spatial cues, especially if there is a vocal layering added to the audio track. Better high-frequency reproduction seems adds to add a bit more sparkle and headroom from the LCD-5 as well. There is a slight dynamic range lift overall from the Lina DAC and Master clock combo compared to the Bartok DAC alone.



The R2R Effect

For the Holo Spring 2 Wildism test, I wanted to go with the DCA Stealth. There is something about this combo I love for vocals and I wanted to see how the Lina amp handled that with one of my favorite DACs behind it. The Spring 2 delivers a slightly warmer and richer tone through the mids and highs and did very well indeed with the Lina amp in fleshing out some beautiful vocal texture and slightly longer levels of decay. It's hard not to fall in love with that R2R sound if you are a vocal lover. What it does lack though is that Lina DAC oomph right on the very low-end, more sub-to-mid bass than upper bass and lower mids where the Holo Audio pairing felt a bit fuller sounding. Here the Stealth felt more authoritative, extending a bit deeper with the dual Lina pairing. The Stealth can be a picky headphone to get a tune out of the low-end, but I had no issues driving it with some good bass power from the Lina Amp. Vocal imaging is not quite as forward sounding using the Holo Audio DAC especially if you have the dCS Master Clock turned on which makes it a very vivid source and amp combo. The

Holo Audio is a little more neutral in its positioning whereas the Lina Amp/DAC combo has it pushed a little further forward when paired with the Stealth.

Noise Floor

For this, I went with an XLR to 2.5mm conversion plug to test sensitive IEMs for balanced and a straight 3.5mm to 6.35mm convertor for the SE output using the Lina DAC and Master Clock as the sources. I had a bit of a mixed bag with IEMs in relation to an audible noise floor and background hiss. My starter IEMs, sensitive ones at that, including the Andromeda 2020 all displayed a higher level of background hiss than I would want and a general noise floor that delivered an audible audio signal even on low gain and the volume at its lowest setting. Less sensitive IEMs such as the Odin, (3 Ω 108dB SPL), and to some extent the VE Phonix, (13 Ω 125dB SPL) all picked up on the higher noise floor though to a lesser extent than the Andromeda 2020, (12.8 Ω 7.01 mVrms for 94dB @1kHz). I had to double-check the Bartok review from a few years back because I had kicked this section off by saying it had an insanely low noise floor and yet the first few tests with the Lina and the Bartok didn't back my previous claims up when comparing. Cue, the 64 Audio U4SE, (12 Ω 116dB SPL), which is the same as the one tested on the Bartok and the JH Audio Sharona, (16 Ω 114dB SPL). Both IEMs delivered what I was hoping for which was very little background hiss and yes, a lower level of noise and better channel balancing compared to the Bartok at similar low volume levels. I got even better results from the Audeze LCDi4 but that was to be expected given its planar design needs a stronger current and voltage supply than the aforementioned IEMs.



Power

Headphones are really where the Lina headphone amplifier excels and I include difficult-to-driver planar options in there. One thing to note is if you are using the DAC and Master Clock combo then keep the Clock on. It made a palatable difference to the clarity and resolution of the performance with all of our tested headphones. I have to use the Susvara for the test case here because there may be some confusion regarding that 2W 30 Ω milestone. The Susvara is actually rated at 60 Ω and 82dB SPL, it needs plenty of current and voltage but its marker is also right where the Lina headphone amplifier is optimal. So, you get the full 4.5W potential of the amplifier with the Susvara, and oh my do you get plenty of headroom also with the dial going no higher than 11 am using the Lina DAC 6V output and the high gain setting on the amplifier itself. I had to check also against a known strong contender for the Susvara, the Feliks Audio Envy which can deliver a milestone of 6W into 32 Ω with excellent current and voltage headroom on its "hi" dial setting. I could detect no dynamic range difference between the two amplifiers when using the Susvara with the only major differences coming down to the distinct tuning these amplifiers bring to the table.

Pairings

The clean, punchy, and energetic performance of the Lina Headphone amplifier works really well with headphones that can take advantage of that and keep up with the level of detail being thrown at you.

Keeping the Clock

Especially with the Lina DAC and Master clock behind it which just amplifies the clarity and articulation to a very high level. These two feel inseparable to me and hard to go back to just the DAC alone without it, almost like how I felt

about the M Scaler when hooked up to the Hugo TT2. For example, I much prefer the Lina setup with the Susvara when the Master Clock was deployed. It brings in some additional exuberance and vividness to the performance, especially in the mids where the Susvara can sound a bit relaxed and flat when switching the clock off. The pairing also does an excellent job adding some depth to the staging, not on the low-end but more clarity behind the vocal and how the instruments are intricately layered and imaged.

Speed & Resolution

The Lina setup also makes the absolute best use of the Abyss Headphones Diana TC's key strengths: speed and resolution. It stretches the staging out a bit wider for me compared to the Envy which is always a good thing for the Diana TC. Vocal clarity and refinement are world-class also with a very black background and whilst not quite as weighty the dynamic range is marginally better than the Bartok using the Diana TC. Bass notes have an exquisite level of definition and sound incredibly articulate in their delivery.

Depth

The Lina's Class AB 'punch' and depth also do very well with the DCA Stealth and the Audeze LCD-5, both of which have fairly neutral low ends. Especially the Stealth which can be tricky to drive. I still feel an R2R DAC such as the Holo Audio Spring 2 is more natural for vocal reproduction but it doesn't quite get the sub-bass as free-flowing and as powerful sounding as the Lina amplifier can when paired to the DAC and Clock.

Select Comparisons

All comparisons were compiled using the dCS Bartok Ring DAC and the Chord Electronics Hugo TT2 DAC output as sources with the addition of the Audeze LCD-5, Abyss Diana TC, and the T+A Solitaire P for headphone choices.

dCS Bartok

The dCS Bartok is the company's initial foray into the headphone community and was reviewed by us in 2020. It walked away with one of our Top Gear Awards that same year. There is a price difference for sure but then again we are talking about an integrated Network DAC, preamp, and headphone amplifier compared to the Lina amp which is a pure analog creation. What we can do is compare like for like as in the headphone component of the Bartok compared to the Lina using the Ring DAC as the source and pre-amping to the Lina at the same time.

Technical

The biggest single difference between both amplifiers is the Class topology with the Bartok using a Class A design and the Lina amp using a Class AB. There will be purists who will remain in the Class A camp but the reality was that the Bartok was covering a lot more areas whereas the Lina needed the dexterity and efficiency to cover all the headphone bases as it is purely a headphone amplifier. dCS has upped the current limits as well as improved the voltage rails on the Lina over the



Bartok amp to give it more headroom for trickier loads and esoteric systems such as planar which require both high current and high voltage levels. To that end, the Lina amplifier is more powerful on paper at 2W into 30Ω compared to 1.4W (33Ω) from the Bartok when going balanced. Even on much higher loads up to 300Ω, there is still more juice on tap from the Lina at 0.48W compared to 0.15W. Optimal output levels are also much higher on the Lina amp, (4.5W), compared to the Bartok, (2.7W), at around 60Ω which will offer more headroom to less efficient planar headphones. I am presuming both mW measurements are A-weighted at 1kHz and we know both have sub-1Ω PO output impedance which is ideal for efficient headgear including IEMs. One other significant technical difference in their amplification is the ability to accept 3rd party analog inputs. The Bartok is enclosed as in it can pre-amp out to any amplifier but it cannot accept an analog input from another DAC. The Lina can not only accept a buffered input from the modular DAC equivalent but also an unbuffered higher impedance input from just about any 3rd party DAC SE or balanced.



Design

The Bartok is a lot bigger and heavier than the Lina amplifier. The form factor is also much wider and deeper making the not insubstantial Lina seem rather compact. One must remember, however, that the Bartok is packing both an amp, pre-amp, and network DAC, and to get that level of functionality with the Lina you have to add the DAC at the very least which brings the comparative weight to almost the same level, 15kg for both Lina components together compared to 16.7kg for the Bartok. Despite the color variation we have for our samples the design language itself is not hugely different. The main differences are largely due to the DAC integration requiring a lot more onboard control and information display which is now shifted to the Lina DAC. The interface on the Lina amp is a lot more minimalistic with no front fascia labeling and a much bigger potentiometer dial. Both pots are very smooth with good control but I slightly prefer the grippier matte texture of the Lina dial for day-to-day use. Any controls on the Lina are lower profile and positioned under the front fascia including power on and the two-stage gain. Bartok actually has more gain stages but 10dB of that gain is DAC driven and 20dB is done via the amp itself through the main menu system. The PO I/O on the Lina amp is more comprehensive with additional left/right balanced XLR outputs as well as matching the Bartok for balanced 4-pin and 6.35mm SE outputs. I do still feel the lack of a 4.4mm on the Lina amp is a missed opportunity in this modern era.

Performance

For this comparison, I opted for the 6V preamp output setting from the Bartok Ring DAC to the Lina amp and started with the Abyss Headphones Diana TC. These have a load rating that should suit the optimal power potential from both amplifiers in balanced mode at 69Ω and 90dB SPL. Splitting the two amps between technical and timbral, the Lina amp has a bit more in terms of dynamic range and pinpoint accuracy but the Bartok amp is a smoother and slightly denser presentation, at least on the low-end. The former is a certain improvement for planar headphones, the latter could be one of pure preference.

Technical

I suspect the additional headroom of the Lina amp delivers that dynamic range advantage but it is not night and day differences. You tend to hear it more in just how responsive the low-end is and it does portray a class AB punchy sound whereas the Bartok has that slightly smoother feel to the low-end that I tend to equate with Class A amplifiers. With the Diana TC, the imaging feels more upfront and dynamic in its delivery using the Lina pairing. It feels precise, quick in its transient response, and quite vivid, especially through the midrange and vocal performances. The Bartok is a little more bottom-heavy though still with a strong vocal image using the Diana TC. However, rather than an upfront performance, the surrounding instrumental imaging placement is a little more dispersed in the delivery creating a roomier but more relaxed staging perception. One thing to note, despite the stronger density of the Bartok and fuller low-end, I actually felt the Lina extended a bit more with the TC, just not with the same amount of body.

Timbre

I think some of that perception is also tainted by the coloration. The timbre from the Bartok is somewhat warmer, more even-harmonic biased with richer color and plenty of detailed texture. Treble is less forward sounding and more graceful which in turn, creates a slightly sweet overtone into the mids though nuanced rather than overt. Leading edges and decay lengths tend to be more liquid than dry which in turn creates a nice mix of weight and a natural 'undistilled' timbre. The Lina feels more precise, more neutral, and snappier. The treble presence levels are increased but not to the point where it becomes bright or unnatural sounding. However, the decay does shorten up a little placing more emphasis on core strengths that the Diana TC loves; transient response speed and highlighting note leading edges.

Chord Electronics Hugo TT2

Sadly, we do not have the Dave to compare, however, we can look at the TT2 rig as the next best offering with both winning awards in 2020 and 2021. Like the Bartok comparisons, the TT2 is much more than a pure headphone amplifier with its own in-house DAC, pre-amp, and modular expansion capability to incorporate other Chord devices such as the M Scaler. In this instance, we will use the TT2 as our source DAC feeding an analog out to the Lina amplifier in order to compare its performance against the built-in TT2 amplifier.

Technical

Chord is somewhat frugal when it comes to exactly what circuitry is inside their actual TT2 amplifier compared to dCS which is quite upfront about the Lina amp using a Class AB design. What we do know is that it is discrete engineered and supplies varying levels of power to both the preamp and headphone amp PO rather than separate components for either. It also uses a discreet output stage between the internal DAC and filter and before the amplifier to reduce potential distortion whereas the Lina uses its unique DC servo system for error and distortion control within its AB circuit. Perhaps, more importantly, is that the TT2 on the headphone side is single-ended by design and does not have a balanced PO capability that the Lina does offer. You could argue the choice of PO is excellent though with not just 1 SE output but 3 including a single 3.5mm and two 6.35mm alternatives. So, if we are rating them side by side on their SE performance on paper the Lina is a little lower officially at 1.6W into 30Ω compared to 2.7W into 32Ω from the TT2. Going balanced, again on paper, it's 2W into 30Ω from the Lina but you have to remember that the optimal level of the Lina amp is closer to 60Ω which will yield a higher potential of up to 4.5W of power.

Design

Well, no question about which amplifier is the lighter and more compact. That will be the Hugo TT2 weighing in at around 2.5kg compared to the heftier 7.5kg of the Lina amplifier. It is also a lower profile with fairly diminutive dimensional measurements so tiny spaces are its friend though the shoebox style of the Lina will be too demanding of rack space either. Both are modular units with the TToby and the Hugo M Scaler all part of an integrated stack similar to Lina's amp, DAC, and Master Clock. However, the pitch is quite different with the Chord stack more for desktop quality HiFi and the Lina stack still resolutely functioning as a high-end headphone system. Aesthetically, very contrasting in the design language. The Chord is somewhat asymmetrical appearances-wise with a mix of see-through ports in the middle, shaded antennae windows, and LCD panels to the left also. It is stylistic but nevertheless a busy interface given you have control of not just an amp but also

a DAC and preamp. The dCS Lina amplifier is much more minimalist, both in operational simplicity and aesthetical appearance. And to be honest, the entire Lina modular stack follows suit looking far less busy, especially when everything is switched off. One thing to mention is Chord's orb color control system. Whilst the LCD menu system does help, it is nevertheless a steeper learning curve than the classic rotary pot control of the Lina amplifier. Aside from the simple gain and power switch discreetly positioned underneath there is a much lower learning curve here. Chord does supply a physical remote control which would have been nice for the Lina amplifier to have if you are not buying the Lina DAC which syncs with the Mosaic app for controls.

Pairing

I decided to go with the LCD-5 for this comparison using the stock 6.35mm cable primarily because driving it is not an issue be it balanced or SE from these two amps. Also, the LCD-5 FR is fairly neutral on the lows and strong in the upper mids so I was curious to see how well each amp coped with both aspects. Given they are running from the same DAC I was not expecting too much difference in terms of resolution so what I was looking for here is dynamic range and coloration.

Performance

What I got was a big difference in the fundamentals from both amps with the LCD-5. The Hugo TT2 is a little thicker and weightier if the music is more focused on the upper bass to lower mids whereas I find the Lina amp to be more neutral and linear in both tonal quality and imaging. You will hear that mostly with most bass guitar texture and presence where you could argue that the Lina keeps it very reference sounding and the TT2 adds a bit more euphony and warmth. However, drop a little lower, say bass synth, kick drums, and massive orchestral drums that reach down way below 100Hz, then the rumble and power of the Lina/LCD-5 pairing are much stronger. I say this though when it is called upon, it is not omnipresent which makes it all the more noticeable when it kicks in. That is a big change in the dynamic for me between both amplifiers. It creates a lot more potential for depth and improved PRaT in the soundstage from the Lina compared to the TT2. The Lina really ups the harmonic lower order giving each uber-low pitching note a more robust authoritative quality. The TT2 mids have a more forward feel to them and it's where you tend to focus more on given the head gain on the LCD-5 is naturally high in that area also. The Lina is more neutral in both imaging and coloration and can sound slightly narrower as a result. It doesn't spray imaging cues quite as wide. However, the additional sub-bass weight creates a bit more stretch in the staging quality whereas the TT2 focuses a lot more on mids width with a mix of height and sparkle thrown in.

XI Audio Formula S

The XI Audio Formula S is one of our long-standing favorite solid-state amplifiers for comparisons here. reviewed in 2018 and a Top Gear Award winner that same year also.

Technical

The Formula S, like the Lina amplifier, is a pure analog headphone amplifier. However, Formula S uses a single-ended Class A discrete engineered BJT topology or a Bipolar Junction Transistor which is current-controlled as opposed to something like a MOSFET which is voltage-controlled. The choice of amplification for XI Audio came down to rating BJT bipolar resistors as better amplifier parts than the FET equivalents to allow them to achieve the specific type of tuning they wanted for the Formula S. The downside is that the design is more energy-consuming and probably not as efficient as the Lina. In some ways, dCS went down a similar route in choosing a Class AB topology. Primarily, in terms of producing an amplifier that can cope with voltage and current demands of a very wide range of headgear whilst at the same time retaining the renowned house sound of a dCS audio component. The Formula S is capable of a single-ended output rating of 2.1 watts into 46Ω which is a competitive rating compared to the balanced output peak rating of 1.6W into 30Ω from the Lina. However, at 2W into 30Ω ranging up to 4.5W at 60Ω the balanced output of the Lina seems likely to be more powerful with improved voltage and current headroom at a similar 46Ω rating for demanding planar headphones.

Design

Both amplifiers retain a fairly traditional 'HiFi' shape and the weight is not too far off each other at 5kg versus 7.5kg. However, for me, that is where the similarities end aesthetically speaking. The Lina amplifier finishing is on another level looking far sleeker, more integrated with nuts and bolts invisible to the naked eye. The Formula S is sturdy, built like a tank, and striking in its own way but has more of a DIY feel to its finishing. It looks like an old-school amplifier in a way. Options on the PO side might seem similar but they are not. The Lina is a balanced headphone amplifier so its range of XLR options are genuinely balanced outputs. The XLR on the Formula S is for varying preferences but will still deliver a single-ended output alongside the 6.35mm socket. On the rear, the Formula S options are more limited with a single set of dual-RCA SE inputs and a single gain switch offering a 6dB swing as opposed to 10dB with Lina's own gain switch housed discreetly on the front panel. One thing you do have with the Formula S is a circular expansion 7-pin power supply connector that connects to XI Audio's Powerman. This is a modular high current discrete power supply and stacks neatly under Formula S. I am not sure that the Lina needs that to be honest but sadly, I cannot say what the advantages sound like as we do not have one here.

Pairing

I decided to go with the T+A Solitaire P for this particular review for a few reasons. The first is that whilst SPL is not an issue at 100dB, its 80Ω rating might give me some more insight into Lina's power curve compared to Formula S. The second is that since Formula S is a single-ended amplifier I wanted to match like for like. The Solitaire P sample we have comes with 4.4mm and 6.35mm only making it a suitable candidate. The final is the Solitaire P's 7-10k treble peak which can make it a slightly fussy pairing if the amplifier and source do not get a solid grip on it.

Performance

The immediate impression of the difference between these two amplifier performances with the Solitaire P was that of the word 'calm'. The Lina amplifier came across as the slightly smoother, more robust sounding amplifier with a calmer top-end whereas the Formula S was more ethereal, more dispersed, and the brighter of the two for the Solitaire P highs. You could argue that the Lina was the more reference sounding of the two pairings, or perhaps not as treble forward and shimmering in its delivery through the treble and consequently the mids timbre to some extent. It certainly seems that the Formula S tuning amplifies the Solitaire P upper FR peaking to a greater extent. Either way, the Formula S felt the busier of the two pairings for the upper mids and treble creating a little more contrast between what I would loosely describe as a more 'elastic' bass response and a slightly lighter-bodied midrange performance. The Lina sounded just right, felt controlled, more physical, and direct in the Solitaire P lows, more evenly balanced through the mids, and slightly softer on the highs. The resulting performance might not be as airy but sounded fuller, more authoritative, and with slightly less dissonance crossing over into percussion and vocal timbre. Of course, the ace card for the Lina is the ability to go balanced so if we are speaking in terms of dynamic range I felt both were quite competitive going SE. However, you will get a superior level of channel separation and improved dynamic range from the additional power of the Lina balanced output.

Our Verdict

It can be quite difficult to reference and talk about the amplifier alone without reference to the performance when combined with the additional components that make this a complete system. And yet, at the same time the world-class performance of the DAC and the Master Clock would all be nothing if the amp was in any way lacking. In that sense, the dCS Lina headphone amplifier is the perfect high-performing partner to its siblings. It's tastefully neutral, very revealing and with enough power to drive every headphone I tested with it. It manages to combine reference level accuracy with an almost perfect harmonic balance to prevent this from ever sounding analytical. I would still call this a pure 'headphone amplifier' though. IEMs, particularly sensitive ones, are still not quite right with this setup unless they are more demanding for power. It is an improvement though from the Bartok so the flexibility for pairing an in-ear is much stronger. Overall, from a planar headphone fan, this is a tremendously satisfying and engrossing world-class solid-state amplifier and if you have the moolah to buy it I will be a very jealous guy but a happy one for you at the same time.