

Analog Four sub-bass

Posted by anigbrowl - 2013/06/19 19:15

Has anyone had luck getting deep basses out of the A4? I am loving the synth in general but have had some difficulty getting really fat sounds out of it. For example, I like the low end on this track:

<https://www.youtube.com/watch?v=osrSWtGyAG0&list=PL1AA4BFF735D7083B> but I cannot persuade the A4 to go there - below about C3 the sound seems to break up significantly.

I find it much easier to get deep basses from the OT. For example I can load up a single-cycle waveform that sounds 'ordinary' but I quickly put it through the OT's filter with a low bass and width and high Q and I get massive, massive sub-bass. Actually, part of the reason I bought the A4 was that I noticed my Virus sounded so thin and weedy without any serious power in low end.

The A4 is definitely bassier but I often find that adding subs to a bass sound just gets it muddy and undefined. If working with single oscillators I like the triangle best, but when I go low the sound is much more likely to end up with that deep 'clicking' sound instead of pushing air. And when I explore the filters I am confused, especially the ladder filter, which seems quite weak compared to the state-variable. For example I turn off the oscillators and put out white noise, but when I turn filter 1 lower than about 45...no energy in the bottom end at all, regardless of the resonance or feedback. below 32 there's nothing at all. I can get something going if I turn filter 2 as a high pass and put the resonance to maximum. This is also a problem for making kick drums by high resonance with a low pass filter - I can do it but it is not very powerful. I tried Anselmi's approach of adding a little overdrive and filter 1 open with resonance set to 74, this gave a little rounder oscillator sound in the lower octave, but it's not very big-sounding. The best results I have had are from using the band pass on filter 2 with maximum resonance, but it doesn't have that much presence. It seems like there is a significant DC offset in the lower octaves, with a corresponding drop in the volume. I notice that when I have a kick and a bass going on the A4 I can overload the OT's converters fairly easily, but it doesn't sound very loud. On the other hand I currently have my computer playing through the C&D inputs on the OT (listening to the tune linked above) and the bass sounds terrific at the same level, so I don't think it's a problem on the OT end.

As an experiment, I made a big sub-bass from a single-cycle wave on the Octatrack (which only took about 30 seconds from selecting the flex machine to watching my speaker cones shaking), then I sent that sub-bass from the cue outs of the OT to the inputs of the A4. The A4 cannot put the deep bass from input to the output, the gain stage gets overloaded very quickly and I just get a distorted version of the same sound - nicely distorted, but without much bass power. Of course I tried lowering the output volume of the Octatrack so as not to overload the A4 inputs, but that gave me just quiet, still not bass energy. By using the bandpass filter at maximum resonance I was able to get something more powerful, but it was amplified/filtered distortion from the gain stage, not sub-bass.

If I turn all inputs off and just play with the filters, I can turn the resonance all the way up on F2 and it self-oscillates, and it does interesting things all the way down in low-pass mode, band-pass, high-pass, or peak mode - it's a nice tasty sub sound, just not very loud...about what I'd expect from a 2-pole filter, although it seems plenty loud in the mid-range. Filter 1 on the other hand...I turn the resonance all the way up, it self-oscillates (higher than my ears can hear until about 118, with no aliasing...great), I start closing the filter... about 90-95 it starts to thing out and below 85 it dies completely. It will not self-oscillate at a lower frequency, whether I send, signal, use feedback, or what. This is about the same as a triangle wave on G8!!

I love how the machine can scream in the high end and snarl and growl in the mid range, or give very rich creamy tones. In general I find the filters flexible to make a good 303 emulation or a subtle and delicate sound like an Oberheim or...but solid bass sounds are a real problem for me. Of course I can keep making bass in the OT, but I expected the A4 would be able to give my woofers some good exercise, and it doesn't. I hate to say it, but I am not impressed with the ladder filter at all; everything interesting the A4 comes from Filter 2 and I only use Filter 1 to keep the highs under control. I wish I had two of Filter 2, or better yet the OT filter.

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I feel stupid, like I am missing something obvious. I really like many of the sounds that I can make with the machine and think it is full of character, each day I find new ways to use and abuse the sync, AM PWM and so on. With a little tweaking I can make it sing and sound almost human. But I can not get it to move any kind of serious air.

It shouldn't be this hard, should it? The OT has so much bass power that I feel I could easily rip my woofers in half and I exercise great caution at high Q settings. I can get a bass sound I like very quickly and move on with my life. When I had an Oberheim Matrix 6 I could get lovely deep tones out of it fairly easily. But every time I reach down to the lower registers (below around c2-c3) on the A4, I come up empty-handed. Should I just give up and write all my basslines on the OT? Because much as I like the A4, I wasn't hurting for midrange sound capability before I bought it.

http://3.bp.blogspot.com/-8vN1H5ZGhzc/UP8G0JebZjl/AAAAAAAAAGul/i_Uk3Db4Olo/s1600/asian-crying.gif

Re:Analog Four sub-bass

Posted by void - 2013/06/19 19:47

could it be that this is by design, so that the A4 is less likely to e.g. blow a club PA if you're not being careful during a performance?

I would think Elektron are quite happy with the sound of the Analog Four, and making it FATTER would maybe have been a crowd pleaser, but the way it is, it's maybe more balanced? Dunno, with 4 bass-heavy monosynths in a box, maybe it would have sounded too muddy in the lower registers?

I don't have any other analog hardware, so this is a noob talking basically..

Before buying the A4, I was worried about whether I would like its "nasal" mid-frequency emphasis... but, after several jams with other people and a variety of instruments, I have not ever had the feeling there was not enough bass power from the Analog Four. In fact, I think it is balanced quite nicely to sound well, both standalone and together with a wide array of other instruments.

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Re:Analog Four sub-bass

Posted by snowcrash - 2013/06/19 20:33

void wrote:

could it be that this is by design, so that the A4 is less likely to e.g. blow a club PA if you're not being careful during a performance?

Sorry, but technically that doesn't make any sense. At all.

The reason why - without some tweaking - the A4 doesn't get "that low" is because of its mishaped waveforms that tend to thin out in the low end. There has been a quite elaborate thread on this here, also with tips and tricks on how to tighten the sound using the overdrive function.

The A4 is no Moog for sure but with proper knowledge and some tweaking you can get as low as you like. e.g. use the second filter with keytracking set to 32 (chromatic) and use the peak-filter setting with moderate resonance tuned to the OSCs frequency to get a significant bass boost. You can also try to use the high pass for that. Actually its the old MS20 trick: using a resonant highpass set to a low frequency to get MOAR BASS.

The real benefit of a synth filter compared to simply using an EQ is, that the filter can be tuned chromatically to follow the keyboard. Very different approach and way more musical.

Btw. be careful though with the peak settings: too much resonance and you could easily blow your speakers.... d'oh!

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Re:Analog Four sub-bass

Posted by jonah - 2013/06/19 22:57

1)Neighbor tracks. More filters, more envelopes to tighten up a flabby bass. You could probably tighten 1 track up with parameter locks, but I find this easier.

2) the filters put out more bass when they aren't static. Try all and layer all the different modulation options. Don't forget about using velocity that doesn't effect volume.

3) filter tracking - do you even use it? :silly:

4) the deepest basses I've made have been with filtering a boss dr5 and it's 808 samples! :cheer: It sounds better to me than the real 808. I think noise and hiss on your input sound helps give the first filter something to chew on.

4a) Use a CV out sine at audio rates, run it through a noisy mixer or slight distortion and back in.

4b) Digital waveform + analog amps, filters distortion has always given me the best bass. DX100, etc.

4c) If you don't want to try 4a this technique works too! <http://www.youtube.com/watch?v=jan82yPkbLg>

Re:Analog Four sub-bass

Posted by Rael - 2013/06/20 02:41

I've found it useful to turn down the volume on more medium and high frequency tracks to be able to boost the overall volume of bass tracks. . .

Re:Analog Four sub-bass

Posted by reset - 2013/06/20 03:25

I think one thing that helped is for both oscillators to trigger in phase via the TRG parameter on OSC2 page 2. Or, often I only use a single oscillator. I am able to get plenty of low end out of the A4 even in relation to a Moog LP and SH101 that I own.

Re:Analog Four sub-bass

Posted by j0hnny - 2013/06/20 04:52

reset wrote:

I think one thing that helped is for both oscillators to trigger in phase via the TRG parameter on OSC2 page 2. Or, often I only use a single oscillator. I am able to get plenty of low end out of the A4 even in relation to a Moog LP and SH101 that I own.

Agreed. There's a lot of movement going on within the A4. Try the TRG parameter so the osc's are in phase. Also try turning off 'oscillator drift' in the setup menu. The PWM modulation can often affect the low end too.

Even before using filtering tricks, the A4 sounds as bassy as the Mono lancet over here when the volume is cranked up. Especially the Feedback osc. As mentioned above, try mixing the other tracks on the A4 lower so the bass track is louder. I have to do that with bass & kicks.

I preferred the multimode Filter 2 to filter 1 at first because it was more familiar, but after using it for a few months I now go straight for filter 1 for most sounds. It sounds more organic & natural.

Re:Analog Four sub-bass

Posted by diabolik! - 2013/06/20 07:02

void wrote:

could it be that this is by design, so that the A4 is less likely to e.g. blow a club PA if you're not being careful during a performance?

the behavior of the delay feedback and overdrive leads me to believe that they weren't concerned with blowing speakers when designing the A4.

Re:Analog Four sub-bass

Posted by anigbrowl - 2013/06/20 07:17

I'm beginning to wonder if it's something with my unit, because I assure you it's not a misunderstanding of how filters work or failing to use tracking or any of that. I can get an enormous sub-bass tone from the OT in no time at all, one that

will push my speakers into distortion as I push it lower.

The A4 simply cannot put out the same signal level, and if I run that sub-bass into the A4's inputs and the all-analog signal path, it distorts even with the filters wide open. Also, I specifically mentioned that Filter 1 only self-oscillates near the upper end of its range. I know the OP was very long, but that's because I explained my testing process in some detail. You should not need to use neighbor tracks or tricky plock modulations just to get a steady deep tone.

Could someone else with an A4 try this: turn all the oscillators and noise level to 0, turn filter 2 resonance to 0 and set the cutoff to 0 (hipass) or 127 (lopass). Turn filter 1 to 127 and the resonance to 127. Lower the output volume a bit to protect your tweeter/ears...Start turning down filter 1 until you hear it self-oscillating. Keep turning it lower. How low can you turn it before the sound dies? Then open the filter and turn the resonance to 0 again. Turn up the white noise level up, and start turning filter 1 down. When does the sound die?

I will record some examples from the OT and A4 for comparison. If other users are able to get Moog or SH-101 type bass out of it then I think that it might be an issue with this unit.

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Re:Analog Four sub-bass

Posted by rasseru - 2013/06/20 08:12

interesting!

filter 1 dies about 100
filter 2 goes all the way down to sub-bass

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Re:Analog Four sub-bass

Posted by rasseru - 2013/06/20 08:15

anything to do with your performance macro setup? (and mine? maybe we havent changed them from a default setting, where filter one has been changed?)

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Re:Analog Four sub-bass

Posted by rasseru - 2013/06/20 08:17

to make matters even weirder - press twice and turn T1,2,3,4,FX all the way up.

now I can hear NOISE all the way down, but no resonance?

edit* i dont have noise turned up, but I can hear background noise which tunes all the way down....

odd, man, youre right about the bass thing :S

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Re:Analog Four sub-bass

Posted by anigbrowl - 2013/06/20 08:55

I don't think it's a performance macro issue, as I recently did an empty reset so as to force myself to build a library of A4 patches - so right now I have about 12 patches and only 1 kit, and the only macro I have set for controlling filter 2 on a different channel.

Actually, I may back up my patches and install the library ones to do some more comparison.

Re:Analog Four sub-bass

Posted by rasseru - 2013/06/20 09:03

well im still on the library patches..

when youve done what I said, above, 2nd PERF page turn all T1,T2 etc up, now turn filter 1 down till it disappears (about 87 for me) .. when you turn the volume up loud (watch your ears) and still tune the filter down can you hear some background noise like me? which is tunable all the way down to 20hz?

anyway im off to bed now but i'll catch up on this tomorrow.. but I cant see any reason why the filter 1 does shouldn't be self oscillating all the way down.. filt2 does it well enough..

Re:Analog Four sub-bass

Posted by jonah - 2013/06/20 10:19

Yeah, filter one isn't something I use for bass.

Turn off the oscs, set filter 2 at high pass, crank the res.

now the weird/ important part is to bring up the frequency up until you hear screaming, then down until you have bass. Place c-2 trigs on 1, 5, 9, 13 You should be able to get a solid thump going. From there try adding in a sub OSC, positive distortion, set an osc to left or right with nothing going in and crank it, etc.

If you lose the bass by bringing filter2s frequency too high, just lower it.

Re:Analog Four sub-bass

Posted by previewlounge - 2013/06/20 10:20

i remember anselmi shared some cool tips for a4 bass duties, sound sculpting. Veets may well have placed this cool info in the OT tips manual, if there is such a thing..

Re:Analog Four sub-bass

Posted by jonah - 2013/06/20 10:45

@ anigbrowl

I mean, I agree with what you wrote about filter 1 and all that, I just don't find filter 2 to be lacking in volume when used for bass. I have my a4 going into the OT and my mixer, and the good thing about the OT is I can lower the input volume as it clips my mixer if I don't roll some low end off!

The a4 is seems to me more suited for kicks, but try messing with the sustain and attack on the envelopes for sub bass sounds? I found that putting the attack too high make it take too long to glide in, but a little lower it gives a nice rolling bass.

Re:Analog Four sub-bass

Posted by anigbrowl - 2013/06/20 12:26

I guess it's partly about expectations...but I can get about 9-12db more of (very clean) sub than I can from the A4 going by the meters on my analog limiter. As well as hearing it I can see the difference just by looking at my speaker cones. I

like what Filter 2 is doing, I just want more of it.

What i really don't get is why Filter 1 sounds so much weaker and doesn't self-oscillate at lower values. It seems to just fade out at about 6000Hz, which is not like any other LP filter I've ever used.

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Re:Analog Four sub-bass

Posted by anselmi - 2013/06/20 13:45

previewlounge wrote:

i remember anselmi shared some cool tips for a4 bass duties, sound sculpting. Veets may well have placed this cool info in the OT tips manual, if there is such a thing..

yep, I was in the same place about the A4 bass capabilities and after some research I finally got it sound much closer to a classic analog bass synth

this is what I found

http://elektron-users.com/index.php?option=com_fireboard&Itemid=28&func=view&catid=9&id=209098

and here's some sound examples of this technique

<https://soundcloud.com/anselmi/a4-03>

<https://soundcloud.com/anselmi/a4-dub>

<https://soundcloud.com/anselmi/a4-06>

<https://soundcloud.com/anselmi/a4-05>

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Re:Analog Four sub-bass

Posted by anigbrowl - 2013/06/20 15:51

Link is broken...the forum post Anselmi's referring to is here.

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Re:Analog Four sub-bass

Posted by SBSIX - 2013/06/23 02:54

There is nothing wrong with your unit. I did a lot of tests on several units. There are a few things that causes this behaviour:

the a4 outputs a lot around 40hz and lacks at 60hz on most settings. That's why mixers and other equipment display a lot of output, while not hearing very much.

the basic waves have a shorter pulsewidth in the lower registers. This makes sounds thinner. This can be somewhat fixed with shaping but the waves never stretch over a full cycle.

the basic waves are 80% of the time below the 0dc line. With a bit of overdrive (25%) the waves become more symmetric.

the filters (especially filter 1) make huge drops in volume when sweeping. Some synths like the mono Lancet keep the same volume while sweeping, making it more useful for synth and especially bass sounds.

I made a comparison vid of the raw waves:

https://www.youtube.com/watch?v=Z4jytb3gYHE&feature=youtube_gdata_player

because of the big volume differences in the a4 sweeps, it starts a little less loud, but that evens out when the filter opens.

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Re:Analog Four sub-bass

Posted by heckadecimal - 2013/06/23 04:57

I believe it says right in the manual that filter 1 is designed to self-resonate at higher frequencies.

As already said, you'll want filter 2 for making sub-bass sine waves, using filter tracking of course.

The thing that bothers me is that filter tracking on the A4 jumps, it doesn't slide with the oscillators/notes (even though they're turned down to only make a sine on filter 2). I wish they would change that.

Re:Analog Four sub-bass

Posted by anigbrowl - 2013/06/23 07:13

Thanks for that update sbsix, I hadn't got around to recabling things yet (A4 & OT haven't been plumbed into my computer lately) but what you describe exactly explains what I'm experiencing.

Well, looks like I have to keep using one audio track on the OT for bass then. Still love the A4, but it's a real pity that it falls short in this area.:unsure:

Re:Analog Four sub-bass

Posted by j0hnny - 2013/06/23 07:46

Add a good little bass synth to the OT + A4 combo & the world is yours :happyday:

Re:Analog Four sub-bass

Posted by SBSIX - 2013/06/23 11:14

Exactly what johnny says... I can really vouch for the mono Lancet, but a minitaur would do great too I think.

Re:Analog Four sub-bass

Posted by anigbrowl - 2013/06/23 16:40

That is a tasty-sounding little beast...

Re:Analog Four sub-bass

Posted by j0hnny - 2013/06/23 19:07

Mono Lancet here too. Highly recommend it. Produces very satisfying moog & sub bass (Triangle osc) sounds.