
A4 CV Pitch Issues

Posted by pocketsimon - 2013/02/15 20:27

I'm hoping someone who knows a bit more about CV than me can help.

I've got the CV track on my A4 controlling my SH-101. It's all connected properly (using an insert cable) and the 101 is receiving pitch and gate info, but unfortunately the intonation is completely off. If I tune the A4 signal so it's sending middle C, it only has to deviate a few notes before it's out of tune. The intonation of the 101 itself when played via the keyboard is fine, so it seems to be a CV issue.

I used to have a Kenton MIDI to CV converter and I'm pretty certain it didn't have this problem. I also remember it had a parameter called 'Scale' or something that allowed you to adjust intonation. Is there a way to do this with the A4? Am I missing something obvious that I can troubleshoot?

Thanks guys.

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Re:A4 CV Pitch Issues

Posted by vst - 2013/02/15 21:58

I assume you have the proper CV type set in the A4 i.e., V/oct.

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Re:A4 CV Pitch Issues

Posted by Fuseball - 2013/02/15 22:05

On the CV Setup page there should be 3 values you can set.

Type (Pitch V/Oct for the SH-101)
Middle C (Sounds like you already have this value set correctly)
V/Oct (This is the one you set to get the scaling between octaves correct)

I had to tweak the V/Oct value to get my Moog Little Phatty playing nicely with the A4. I assume this the same as the Scale feature of the Kenton converter.

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Re:A4 CV Pitch Issues

Posted by Sofine - 2013/02/15 23:28

Fuseball wrote:

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Speaking of CV pitch to the Little Phatty, what setting are you using for V/Oct? IIRC I'm using 0.97 and also 3 for middle C.

Also, has anyone set up their A4 with an Oberheim SEM (pro) yet? Mine just arrived :)

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Re:A4 CV Pitch Issues

Posted by lukas412 - 2013/02/16 00:04

The A4 I had for a short time tracked very poorly. +/-25 cents over a single octave. I tested this with a eurorack oscillator that tracks close to 8 octaves almost perfectly with my Kilpatrick k1600 midi to cv. Elektron just told me to check the settings which were correct.

Luke

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Re:A4 CV Pitch Issues

Posted by Sofine - 2013/02/16 00:21

lukas412 wrote:

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Luke

That's been my experience so far too and I am starting to come to the realisation that using the CV for pitch may not be workable (having issues with little phatty, SEM and ms10), however, for non-pitch duties, it's fun (FM, filter, PWM etc.)

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Re:A4 CV Pitch Issues

Posted by hearteh - 2013/02/16 01:08

my sh-101 tracks around -10cents over 4 octaves. im using 0.95 for v/oct and 2.83 for middle c

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Re:A4 CV Pitch Issues

Posted by hearteh - 2013/02/16 01:11

my kenton tracked better though if i remember correctly

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Re:A4 CV Pitch Issues

Posted by hearteh - 2013/02/16 01:41

it tracks like 5cents worse than the sh-101 itself over all octaves lo to high.

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Re:A4 CV Pitch Issues

Posted by darenager - 2013/02/16 01:55

Interesting, I have not checked scaling accuracy on mine, the easiest way to tell if the problem lies with the A4 or the synth is to use a multimeter to measure the volts at each octave.

I might try mine later.

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Re:A4 CV Pitch Issues

Posted by Fuseball - 2013/02/16 03:10

Sofine wrote:
Fuseball wrote:
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I read somewhere that the Little Phatty should track at 0.97V.

Mine comes out at 1.04 V/Oct. I set Middle C at +0.02 V. I figured that as the Little Phatty goes from -5V to +5V then I should try and get it as central as possible. Sounds about right at that setting anyway.

I think the Moog treats the Pitch CV as an offset from the last voltage generated by a keypress. I have to hit a C (C3 in my case) which maps to Note C5 on the A4 (lower C of octave 0). I managed to get the tuning of the Little Phatty wildly out at one point but I think that might have been because I stopped the A4 mid-sequence.

Also, turn Auto-Tune off. :)

Re:A4 CV Pitch Issues

Posted by darenager - 2013/02/16 04:37

Ok here are my A4 CV readings for CV A set to v/oct middle C as 3v
C2 -0.006v, C3 1.036v, C4 2.078v, C5 3.112v, C6 4.153v, C7 5.188v, C8 6.229v, C9 7.28v, C10 8.32 v

I also tested my Oplab:

C2 0.043v, C3 0.984v, C4 1.990v, C5 2.995v, C6 4.001v, C7 5.007v, C8 6.013v, C9 7.03v C10 8.04v

And my Kenton Pro2000MkII

C2 0.004, C3 0.997, C4 1.997 C5 2.997, C6 3.997, C7 4.997, C8 5.997, C9 6.997, C10 8.01

For the test I used a Fluke 110 True RMS Multimeter (so a very accurate one, not a cheapo)

I was surprised that the Oplab did better than the A4, it could be that the DAC in the A4 is not as high resolution or it could be a bug in the A4 OS.

Re:A4 CV Pitch Issues

Posted by darenager - 2013/02/16 20:45

BTW It wold be handy if someone else with a decent multimeter would post their results so that at least there are a few results to look at.

Re:A4 CV Pitch Issues

Posted by Fuseball - 2013/02/16 23:36

My multimeter is at my parent's house (I'm fixing up a pinball machine there). When I get it back I will measure my A4's CV output voltages for you. I'm interested to see how it relates to the Little Phatty's tuning.

Re:A4 CV Pitch Issues

Posted by grantb - 2013/02/18 08:26

darenager wrote:

BTW It wold be handy if someone else with a decent multimeter would post their results so that at least there are a few results to look at.

CVA tip V/oct, middle C = +3V, V/oct = 1V, Transpose = 0

Fluke 111 used (which is exactly 1 better than yours Daren, so there :P) Warmup ~15 minutes.

A4 keyboard and octave controls used, notes outside this range were tested by adjusting the TUN parameter to +12 and +24

0.008
1.043
2.084
3.125 middle C
4.172
5.211
6.259
7.31
8.36

Side note: I can't get middle C to be exactly 3V without adjusting the "middle C" parameter in the setup menu.

With middle C = +3V I get:

TUN = -2 and FIN = +63 gives 2.974V

TUN = -1 and FIN = -63 gives 3.018V

With middle C parameter set to 2.88V, TUN = 0, FIN = 0 (measured Voltage = 3.001V @ middle C) here are the results:

-0.115
0.921
1.961
3.001 middle C
4.048
5.088
6.135
7.19
8.23

So it looks like I have in the neighborhood of 0.04V/oct tracking error near middle C when calibrated.

Re:A4 CV Pitch Issues

Posted by grantb - 2013/02/18 08:50

Ok so duh it just struck me that my V/oct error could also be adjusted with the V/oct parameter

Same test with middle C = +2.88V and V/oct = 0.96V

0.012
1.007
2.005
3.003 middle C (drifted 0.002v between tests)
4.007
5.005

6.012
7.02
8.03

Morals of the story:

- 1) A4 CV out works fine, it just needs to be calibrated to real world values if you require accuracy.
- 2) If you're using Voltages to control things, it's nice to have a good Voltage measurment device.

Re:A4 CV Pitch Issues

Posted by darenager - 2013/02/18 10:32

Hmm, it would be nice if the values set were reflected in the actual values output - judging by your results it should be possible for Elektron to at least get them within about 0.005v of the displayed values.

Thanks for posting!

Re:A4 CV Pitch Issues

Posted by grantb - 2013/02/18 11:42

It would be cool if the numbers were accurate. I wonder if it might not be possible due to temperature variations. There would have to be some feedback between the output voltages and the OS to have a tuning and scaling routine. You and I have similar scaling error though, so who knows.

Re:A4 CV Pitch Issues

Posted by pocketsimon - 2013/02/18 12:08

Thanks guys, all this info has been really helpful. I've adjusted the settings as advised and am happy with the results. Cheers!

Re:A4 CV Pitch Issues

Posted by Sofine - 2013/02/18 15:55

pocketsimon wrote:

Thanks guys, all this info has been really helpful. I've adjusted the settings as advised and am happy with the results. Cheers!

Yes, thanks guys. Will try these adjusted settings with phatty and SEM this evening.

Re:A4 CV Pitch Issues

Posted by Sofine - 2013/02/19 04:10

OK, so I borrowed a multimeter (iso-tech idm 97II) from work and here is the result of the Irish jury:

I found I was getting different voltages from CVA and CVB, even though the settings were identical, so I listed both!

mid c 3v, 1v per octave
cva / cvb

c2 .001 / .001
c3 1.045 / 1.001
c4 2.078 / 2.035
c5 3.12 / 3.078
c6 4.14 / 4.1

mid c 3v, 0.97v per octave
cva / cvb
c2 .001 / .001
c3 1.108 / 1.064
c4 2.111 / 2.067
c5 3.12 / 3.077
c6 4.11 / 4.07

I'm a bit out of my depth as to how to analyse this much further but hopefully this helps shed some light perhaps? I performed the tests twice and got the same results.

I had also heard that 0.97 might work better for moog synths, so I tested this too

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Re:A4 CV Pitch Issues

Posted by metalfalcon - 2013/02/25 13:46

Has the .97 setting worked well for users with a Slim Phatty paired up? It seems as though the Slims differ a bit in warm up time and other voltage related aspects from the Little phatty. i want to incorporate the slim with the A4 but I worry about the frustration factor(due the to the slim's quirks more so than the a4).

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Re:A4 CV Pitch Issues

Posted by skab - 2013/03/11 12:37

Here's what I've found with the Minitaur.

Middle C: +2.51V
V/Oct: 1.07V

This works fine if you want to play C3 - C4, but in the octave C4 - C5 V/Oct needs to be dropped to around 0.97. So basically, p-locking the FIN control, which is annoying. I don't have a multimeter so I can't say whether it's a problem with the A4 or my moog. hmmm :/

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