# ssm2164\_seppoman pcb - getting started - how to setup

the following informations are take from the midibox forum, its a collection of infos, without the claim to be 100% true, i will try to test the given information.

## **Power**

+ GND -

J5 is obviously the only connector where you could come to the conclusion that it might have something to do with power supply. Just like the:

AOUT(NG), the 2044 board, the MB\_FM module etc, it expects a bipolar power supply of +/- 12 V and GND.

# CV

as a general rule of thumb you can assume that everything that doesn't specifically mention a bipolar control voltage will expect an unipolar CV.

In the case of this module, IIRC the dynamic range of the regular **CV range (0 .. 11.67V)** (uni-polar!) is about 65 dB, with 0V being "silence" and 11.67V being unity gain.

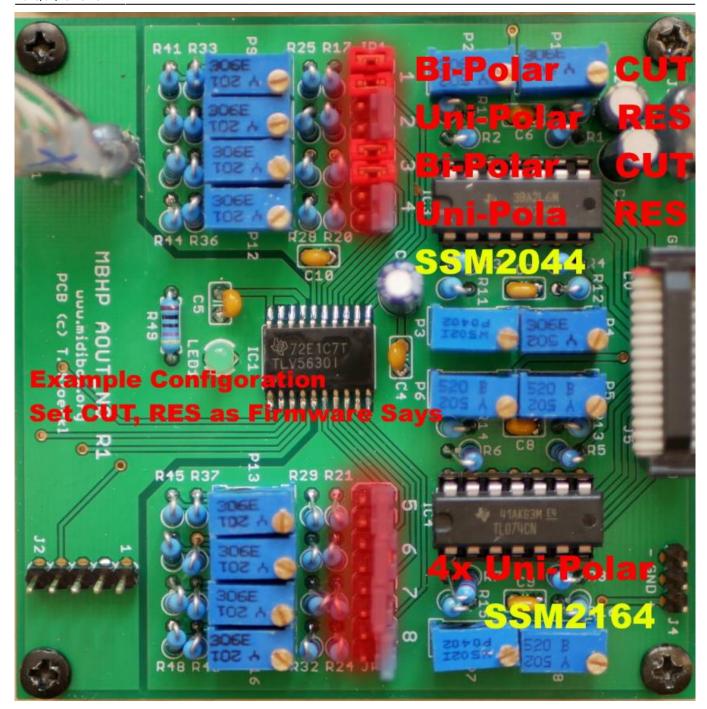
I have never thought about what happens if you apply a negative voltage to the CV input...

Note also that generally a bipolar control voltage (CV) still doesn't mean that there are more than two wires involved,

just the one signal can be above or below GND.

# **AOUT\_NG Connect and Setup**

Unipolar Jumpering like shown:



# **AOUT\_NG Stuffing Parts PCB**

## **Resistor Solution stock - very low voltage**

if you followed aout ng built plan you will get following Stock-CV-Voltages @+-12V PSU:

Uni-Polar CV-Range: 0-11,4V Bi-Polar CV-Range: +-3V

#### SSM2164 & Stock AOUT NG:

As the SSM2164 is UniPolar, and seppoman designed it as a couple with AOUT\_NG. stock is ok

#### SSM2044 & Stock AOUT\_NG:

As the CUT-Off-CV is UniPolar, and seppoman designed it as a couple with AOUT\_NG. stock is ok I guess for proper +/- 5V operation I'll have to try out a few other resistor values on the SSM module, but this will only apply if you if you're using a different CV source than an AOUT NG.\\

If you need more CV-Range: for more distortion, drive, range, or other modules:

if you sum two voltages through two resistors of same value, you'll get (V1+V2) / 2 as a result...

#### Resistor Solution low voltage - seppomans prefered

**R9...R16** > **5.6k** (only on the channels that are setup for bipolar mode) **+-3.5V to +-5.8V** Bi-Polar calibration range **Pro:** easy job, still have a decent precision when calibrating.

#### Resistor Solution Stock - NorthernLightX prefered

we came to the conclusion that it's probably much easier to have the AOUT only output **unipolar 0 to 10 volt**, and design **a simple -5v level shifter board** that can be used as an add-on (or separate module with hands-on access to the level shifting) to **shift the output to -5 to +5 volt** where needed.

#### Things to consider are:

- not a lot of equipment actually makes use of negative voltages
- equipment that needs bipolar CV input can be retrofitted with a fixed level shifter at the input to make it compatible with your other modules
- negative voltages can be used for CV modulation purposes (modulate one CV source with another) so it's certainly not useless

### **Resistor Solution high voltage**

R1...R8 > 10k

R9...R16 >2.2k (on all channels). (QUESTION WHY ON ALL? +9.5V to +22V Uni-Polar calibration-range



+-2.4V to +-5.5V Bi-Polar calibration-range ( dont think so



**Pro:** preserve the "just change the jumpers if you need some channel in bipolar mode" thought behind this option.

**Con:**dramatically increase the calibration range, i.e. exactly calibrating the outputs will get harder because the same angle of turning the pot will have much more impact.

From:

http://www.midibox.org/dokuwiki/ - MIDIbox

Permanent link:

http://www.midibox.org/dokuwiki/doku.php?id=ssm2164\_getting\_started&rev=1524491156

Last update: 2018/04/23 13:45

