

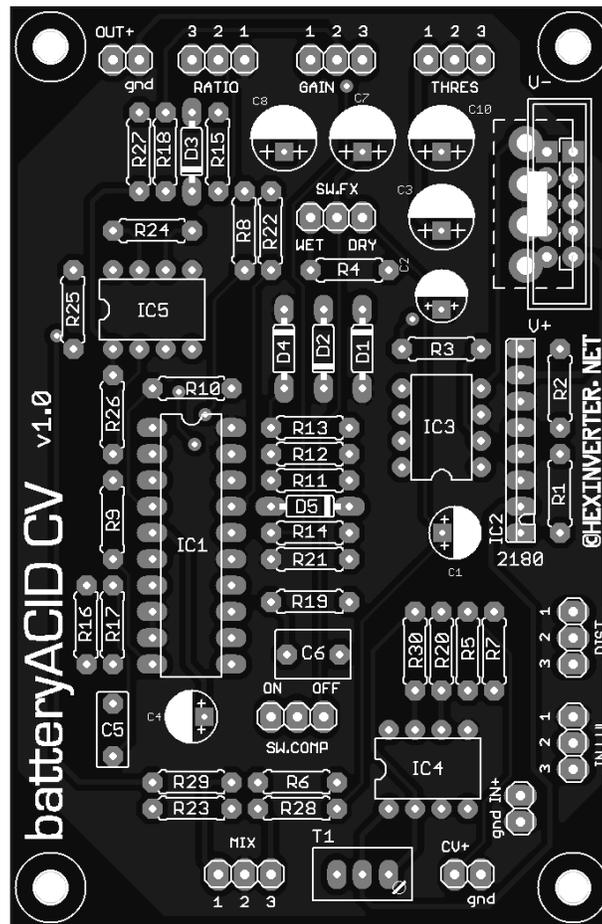


HEXINVERTER.NET

presents

batteryACID: CV

a voltage controlled analogue distortion/compression module



Assembly Manual v1.0

Introduction

This manual exists to aid DIYers in creating their own batteryACID module from a bare PCB from hexinverter.net

Please note that this is an advanced project and a lot of mechanical and electronics ability is taken for granted. If not purchasing a dotNET 4U format panel from me (coming soon), you will have to craft your own panel and of course decide how to mount the PCB to the panel when you are done. Please consult the Muffwiggler synthDIY forum for information on how to do this sort of thing -- I will NOT be explaining these things in this manual (or any that I provide) and if you email me asking, I will tell you to go to Muffwiggler anyway as there are countless topics about these very things already in existence there.

If you are looking for information about how to use this module, consult the User Manual at the hexinverter.net project site (cv.hexinverter.net), as this is the build manual for DIY and that will not be explained here.

Note that the "batteryACID: I Dream of Wires Edition" and "batteryACID: CV" are the same electronic circuit. You may read the User Manual from either to understand how to use the module.

Technical Notes

At full distortion, batteryACID consumes about 25mA at +/-12V. It can run on either 12 or 15V without any changes to components.

batteryACID works by overdriving a high quality THAT Corporation logarithmic response VCA. This produces an overdrive effect. This overdriven signal is then fed into an arrangement of silicon diodes which further clip the signal, producing an intense analogue distortion effect.

This circuit uses the same diode-clipping arrangement as the MXR Distortion+ which was made famous in acid house tracks by being used on TB-303s and other synthesizers/drum tracks. Of course it is ultimately totally different since it uses a VCA and has many other features not on a guitar pedal.

The distorted signal is then optionally fed into a simple but very useful high quality analogue compressor based around a THAT4301 dynamics engine. These are the same brand of high quality semiconductors used in the very expensive Moog 500 series studio effects modules. This simple compressor is meant to compensate for control voltage modulation of the distortion amount. Because the distortion amount varies the volume of the signal being processed, it is necessary to try and keep it at a fixed level over time. This is of course exactly what a compressor does!

Notes About Parts/Substitutions

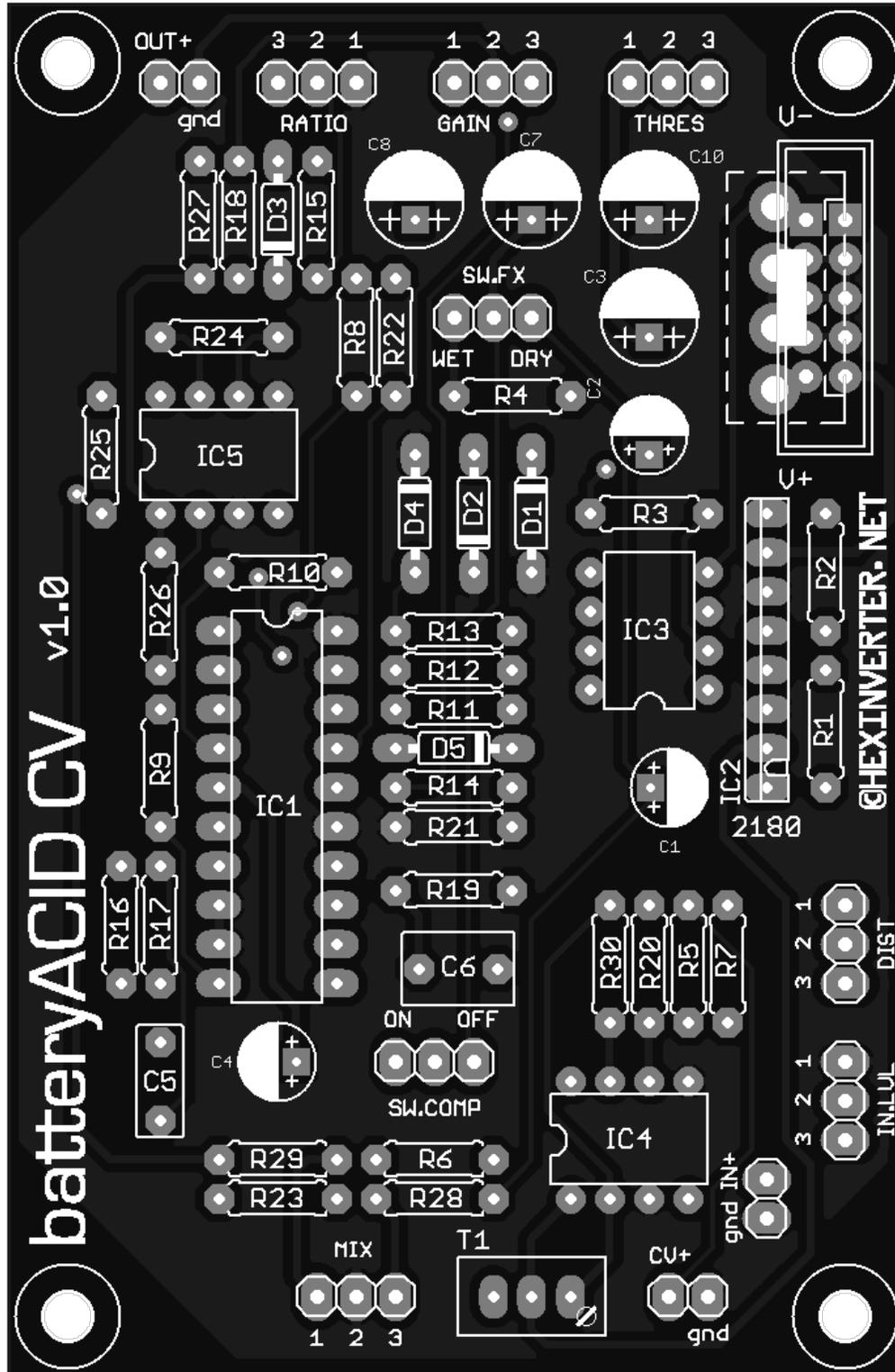
I don't recommend making too many parts substitutions with this design. All resistors should be 1% for best performance.

For the THAT2180 VCA, you can use A, B or C grade suffix. It doesn't matter. I used C and it sounds fantastic. Don't waste your money on A or B unless you really want to. It is distortion, afterall, so why pay more for a LOWER distortion VCA chip? ;)

If you use the parts I suggest in the BoM you will have no problems.

Feel free to replace IC3 and IC5 with higher quality opamps if you like, but I find the TL-series to be the best performance for your dollar.

PCB Overlay



Wiring Guide

POTENTIOMETERS VIEWED FROM FRONT

