



## 1.1 Overall description

This module came out of a personal need to combine punishing noise modules but making it being able to both track 1v per octave as well as do more traditional musical duties besides just ripping things up. I think that the Bristol Bloodhound (in the right hands) is capable of both. The sine core is my own interpretation on the sine oscillator found in the Dreadbox antiphon<sup>1</sup> (used with permission) using a 2164 for both generating the sine wave as well as the VCA portion of the module. I added a LFO switch which will turn pull the oscillators down deep so serve as a LFO. The wave mult section is derived from the CGS module with the same name (also used with kind permission from Ken Stone) with only minor adjustment most notably a feedback section for creating harsher dynamics and noise. The oscillator is normalled the wave multiplier via the Wave in jack. The Second Oscillators sine output is normalled to the CV in of the wave mult and vice versa. Inputting an external signal into the Wave in breaks the sine connection but the sine is still present at the Sine output (you can then use the sine portion for lfo duties for example). This makes it possible to use the module for processing other sounds than the onboard oscillator (field recordings, drummachines, other oscillators etc). The Feedback input accepts all kinds of signals, both cv, triggers and gates and audiorate (feel free to experiment). There are two attenuators for feedback and wave cv. Tracking when calibrated should be around 4-5 octaves. MKII also sports dedicated square outputs unaffected by the VCA (for drones etc). A more thorough demo is available at YouTube.

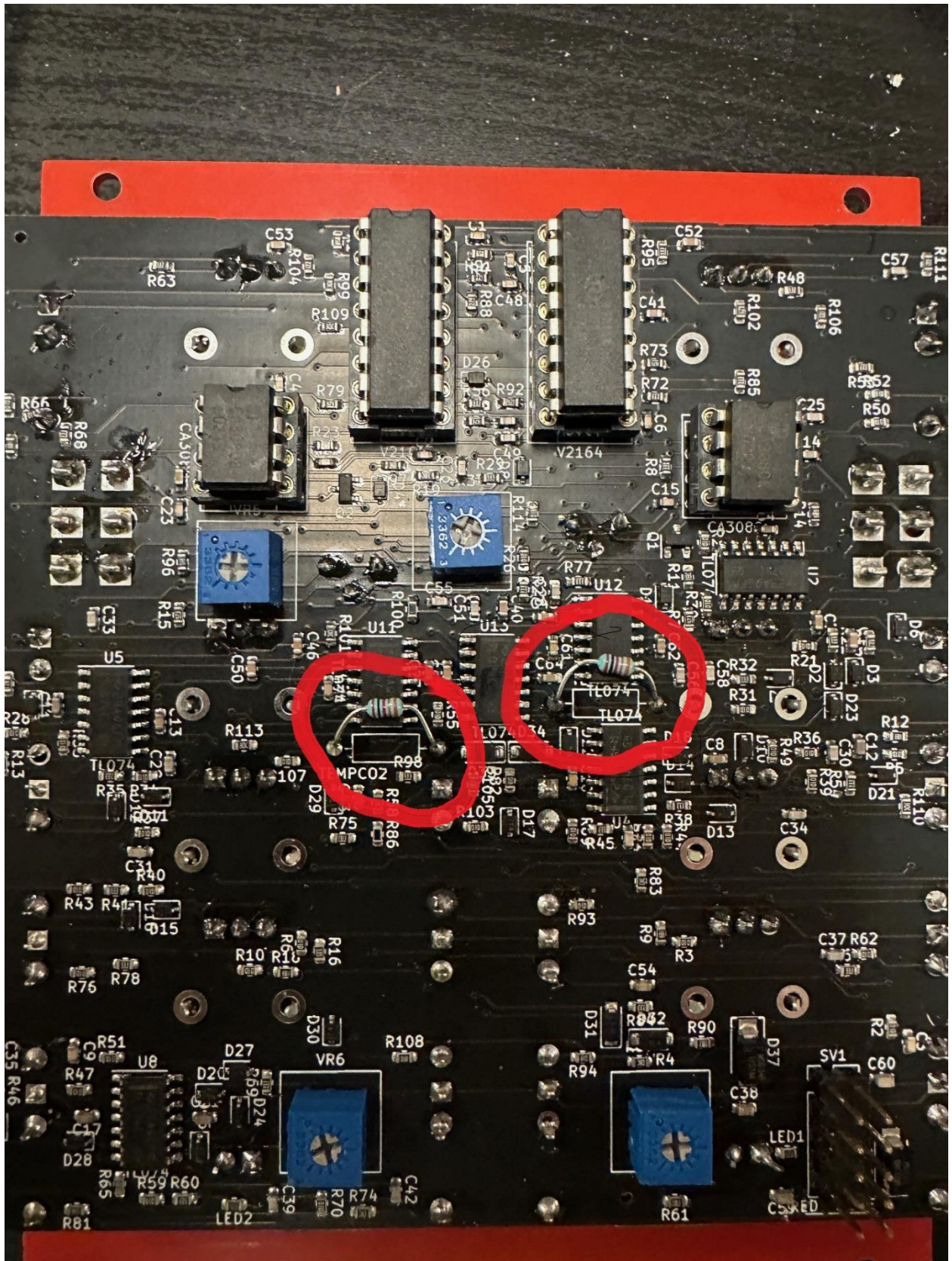
---

<sup>1</sup> <https://www.dreadbox-fx.com/antiphon/>

## 2.1 The actual build.

Building this is quite straight forward. I usually start with the backside of the pcb soldering the wave mult trimmers (100k) the IC's holders and power connector. Then solder the 2 tempcos making sure they are touching the lower 3<sup>rd</sup> of the SMD ICs located just above them. Fold them so they are touching the IC's as close as possible (see picture), then move on to the other side.

I then solder in the 4 trimmers on the front side (5k). Fit all jacks and solder the ground leg, the one sticking out from the jack to a square pad. Fit all the pots and solder one pad from the top. Place the switches and the LED's but don't solder them (leds should actually have the long leg through the square pad using my leds, then negative voltage will flash red and positive flash white. It depends on the actual . Put on the panel make sure everything is aligned and that the leds are sticking out from beneath the panel. Solder every pad from the backside. Check once or twice you haven't missed a single pad. Then you are done.



## 2.2 Calibration

Wavemultiplier: turn the trimmer on the front side of the pcb until you have a a sweep that sounds pleasant to you ears.

1v: VR3 and VR5 sets the initial pitch. VR4 and V6 is where you do the rest of the calibration. So first set a span you are satisfied with on VR3-5. Then follow the guide: Is quite easy but takes some time and patience, there are several videos up on YouTube how to calibrate a VCO (use this: [https://www.youtube.com/watch?v=Dt2iaX98wcU&ab\\_channel=Dreadbox](https://www.youtube.com/watch?v=Dt2iaX98wcU&ab_channel=Dreadbox)). First leave the oscillator running in a stable temperature room for at least 15-30 minutes before calibration. Check with a tuner that it isn't drifting for at least a minute before calibration begins, if so let it warm up even further. It should be able to track 4 octaves (perhaps even 5 if you are lucky), YMMV.

## 3. BOM

Part	Designator	QTY	INFO	Product link
Thonkiconns	J1-J16	16	Thonkiconn jacks	<a href="https://www.thonk.co.uk/shop/thonkiconn/">https://www.thonk.co.uk/shop/thonkiconn/</a>
10k pot	RV7-8	2	10k lin pot round	<a href="https://www.thonk.co.uk/shop/alpha-9mm-pots/">https://www.thonk.co.uk/shop/alpha-9mm-pots/</a>
100k pot	RV1-6	6	100K lin pot t18	<a href="https://www.thonk.co.uk/shop/alpha-9mm-pots-vertical-t18/">https://www.thonk.co.uk/shop/alpha-9mm-pots-vertical-t18/</a>
SPDT ON-ON	SW1, SW2	2	ON-ON DPDT	<a href="https://www.taydaelectronics.com/mini-toggle-switch-dpdt-on-on.html">https://www.taydaelectronics.com/mini-toggle-switch-dpdt-on-on.html</a>
Freq knobs	knobs	2	Davies Fine - Small Skirted	<a href="https://www.thonk.co.uk/shop/davies-skirted-knobs/">https://www.thonk.co.uk/shop/davies-skirted-knobs/</a>
Micro knobs	knobs	6	Must be Black	<a href="https://www.thonk.co.uk/shop/micro-knobs/">https://www.thonk.co.uk/shop/micro-knobs/</a>
Euro rack Power pins, cut to length	SV1	1	10pin eurorack header	<a href="https://www.taydaelectronics.com/2x40-pin-2-54-mm-double-row-pin-header-strip.html">https://www.taydaelectronics.com/2x40-pin-2-54-mm-double-row-pin-header-strip.html</a>
3080 IC's	U6,U9	2	8pin through hole IC's	<a href="https://www.thonk.co.uk/shop/alfa-as3080e">EBAY, ALIEXPRESS or: https://www.thonk.co.uk/shop/alfa-as3080e</a>
V2164 IC's	U1, U3	2	16 pin through hole IC	<a href="https://www.thonk.co.uk/shop/as2164/">https://www.thonk.co.uk/shop/as2164/</a>
8-pin socket		2	socket for 3080	<a href="https://www.taydaelectronics.com/8-pin-dip-ic-socket-machine-tooled.html">https://www.taydaelectronics.com/8-pin-dip-ic-socket-machine-tooled.html</a>

16 pin socket		2	socket for v2164	<a href="https://www.taydaelectronics.com/8-pin-dip-ic-socket-machine-tooled.html">https://www.taydaelectronics.com/8-pin-dip-ic-socket-machine-tooled.html</a>
Bicolor two pin leds: Red/white	D35-36	2	Leds	<a href="https://www.ebay.com/itm/190894964341?var=490181180284">https://www.ebay.com/itm/190894964341?var=490181180284</a>
5k trimmer	VR3-6	4	5k trimmer	<a href="https://www.taydaelectronics.com/5k-ohm-trimmer-potentiometer-cermet-25-turns-3296w.html">https://www.taydaelectronics.com/5k-ohm-trimmer-potentiometer-cermet-25-turns-3296w.html</a>
100k trimmer	VR1-2	2	100k Trimmer	<a href="https://www.taydaelectronics.com/100k-ohm-trimmer-potentiometer-cermet-1-turn-3362p.html">https://www.taydaelectronics.com/100k-ohm-trimmer-potentiometer-cermet-1-turn-3362p.html</a>
Tempco	TEMPC01, TEMPC02	2	2k Tempco	<a href="https://www.thonk.co.uk/shop/tempco-resistor-akaneohm/">https://www.thonk.co.uk/shop/tempco-resistor-akaneohm/</a>