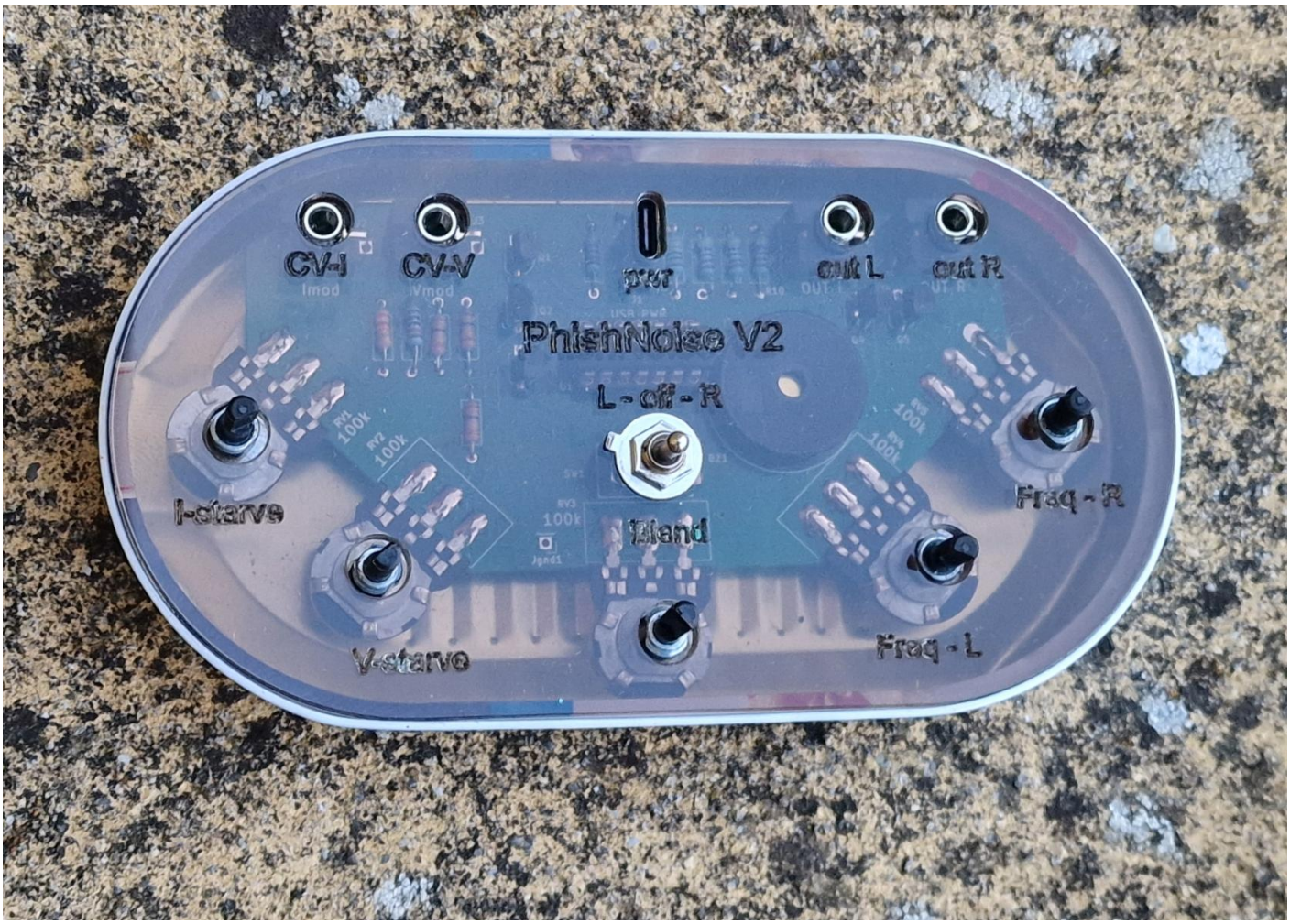
PhishNoise

PhisNoise is a compact dual dBm oscillator in a fish can. Although it uses only 1 hex inverter chip, 5 transistors and some passive components, it can create its own universe of strange, chaotic, analog sounds , which would be demanding to copy even with a big modular system. All PhishNoise are different. Even if you use the chips from the same manufacturer they sound different due to tolerances. And there are lots of pin compatible hex inverters from different logic families, with or without Schmitt-Trigger inputs and many brands out there. 2 chips can be stacked - yes, all 14 pins parallel - to create more new sounds. A CD40106 together with a 74AHC04 sounds good - most often ;-)



what's inside

2 coupled RC square wave oscillators, each with a tune potentiometer , are supplied by voltage controlled power starving. There are 2 potentiometers to set supply voltage and current limit . Voltage and current also have 3.5mm input jacks for CV. A 5th potentiometer controls an internal capacitive load, which strongly affects the chaotic behavior of the starved oscillators. this load can be switched between the oscillators, with the Left-Off-Right switch. Each oscillator has 3.5mm

mono output jack, L-out and L-right.
PhishNoise can be supplied by any USB-C 5V source . If Power banks are used, make sure they don't switch off due to the tiny mA load.

how to play

The nonlinear, chaotic behavior of the circuit makes sounds creation with PhishNoise not really intuitive ;-)
It's all about finding the sweet spots. Turning the same potentiometer will produce different effects depending on the current state of the oscillators. Sometime you turn it from 0 to full and nothing will happen, sometimes a slight touch will shift the sounds to something completely new. It is even possible that turning a potentiometer from A to B, then back to A, the sound will be different because you altered the internal state. PhishNoise has no dedicated BPM knob, because all potentiometers and CV inputs can affect tempo. If you need to play together with others or just need a straight stable beat, you can use the voltage and/or current starving CVs for modulation to get a kind of soft to hard sync.

the bigger picture

PhishNoise can be used as stand alone instrument, but it makes sense to extend it with other devices. Although you can use patch cables to connect the sound outputs straight to the CV inputs, it is obvious that an external feed back loop with a mixer or modular synth will extend the capabilities. A typical setup uses a sound mixer with inputs connected to the 2 PhishNoise audio outs and 2 mixer outs like FX send or Aux out connected to PhishNoise current and voltage starving CV inputs. This feedback loop, together with the mixers sound controls and FX brings PhishNoise closer towards a playable musical instrument. Even more is possible when PhishNoise is integrated as VCO in a modular system, but this can not be discussed here in detail.
There are 2 main use cases for PhishNoise. One is using it as a complex sample generator where the samples later will be processed and used in a DAW. The other is on stage use with a mixer/modular setup described above.
Here are 2 sound examples that use only samples created by PhishNoise in a mixer loop. No other sound sources. The DAW was used to cut and stretch the samples into audio tracks and add some equalizing and reverb :

"ghost riders" by Uwe Schüler

"Himmelsmechanik drkmbnt remix" by Wolfgang Dorninger

building PhishNoise

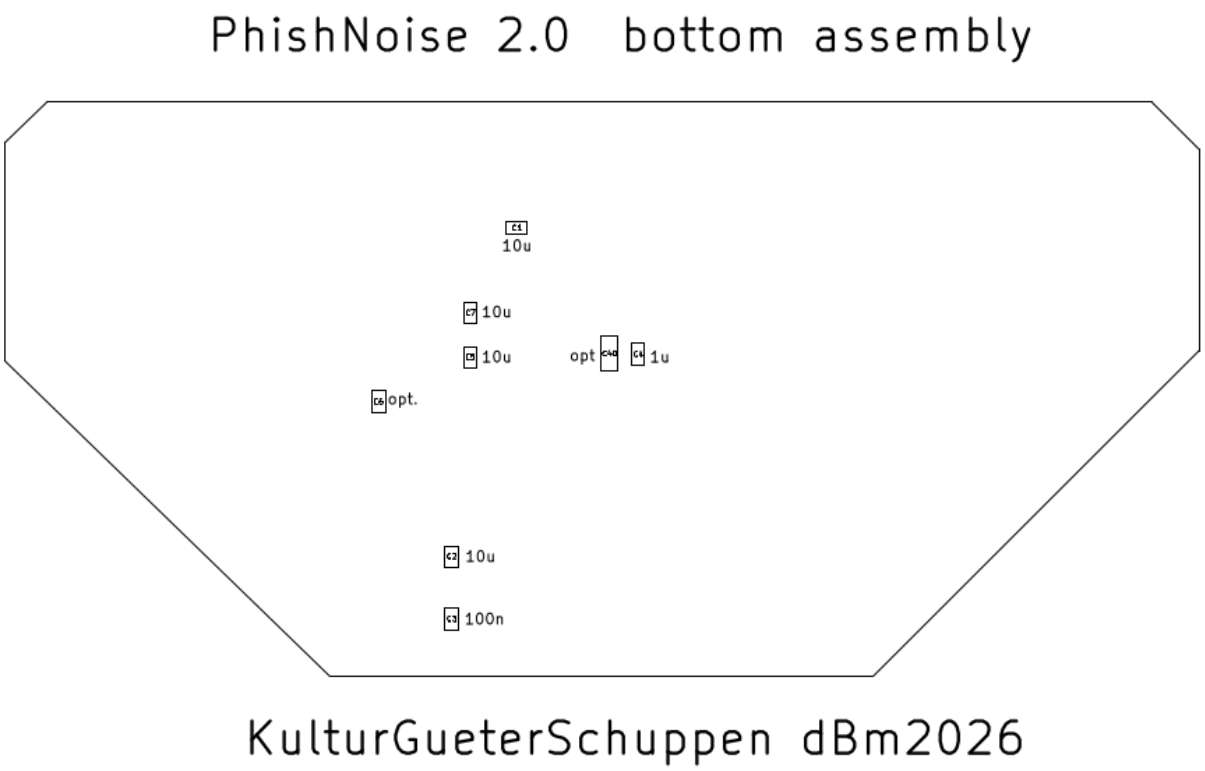
PhishNoise is available as a DIY kit and there will be workshops where you can build one.

PCB Assembly

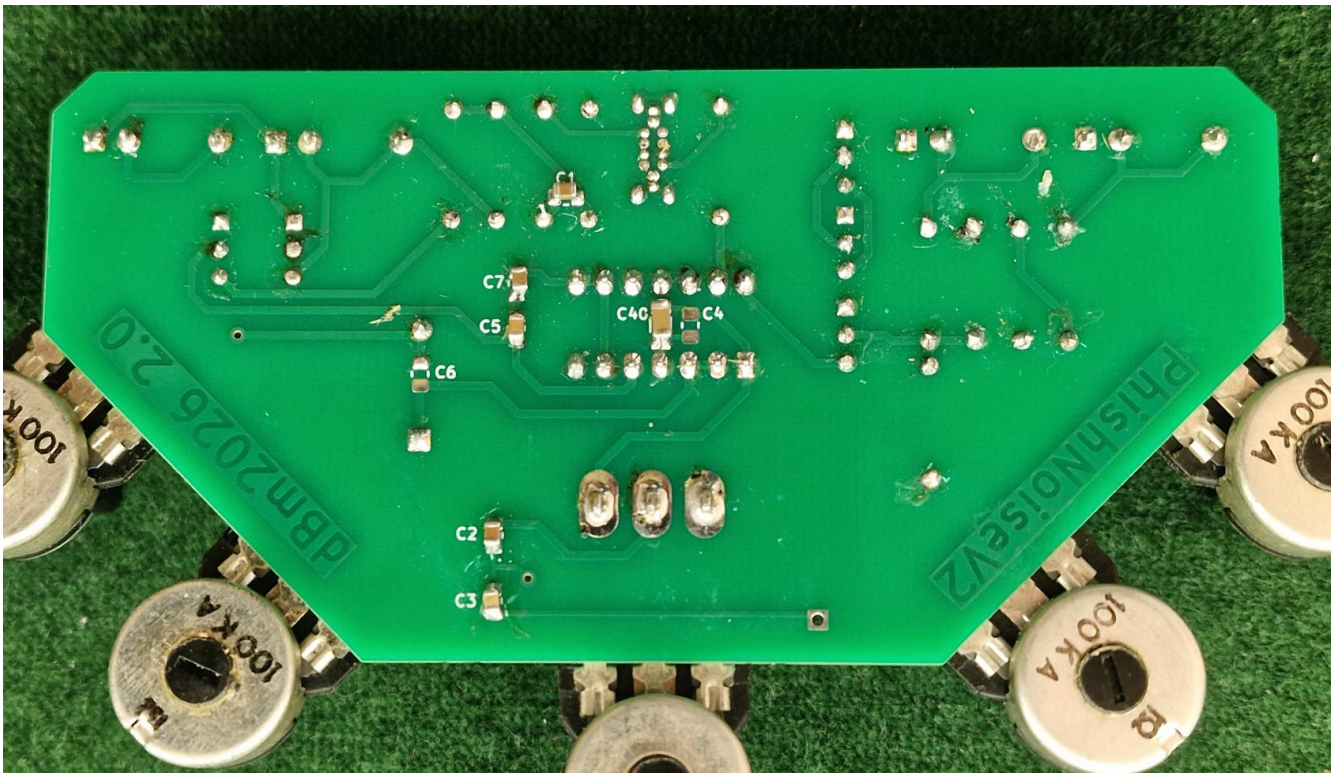
it is strongly recommended to follow the assembly instructions step by step otherwise you can ruin your PCB !

1) SMD assembly

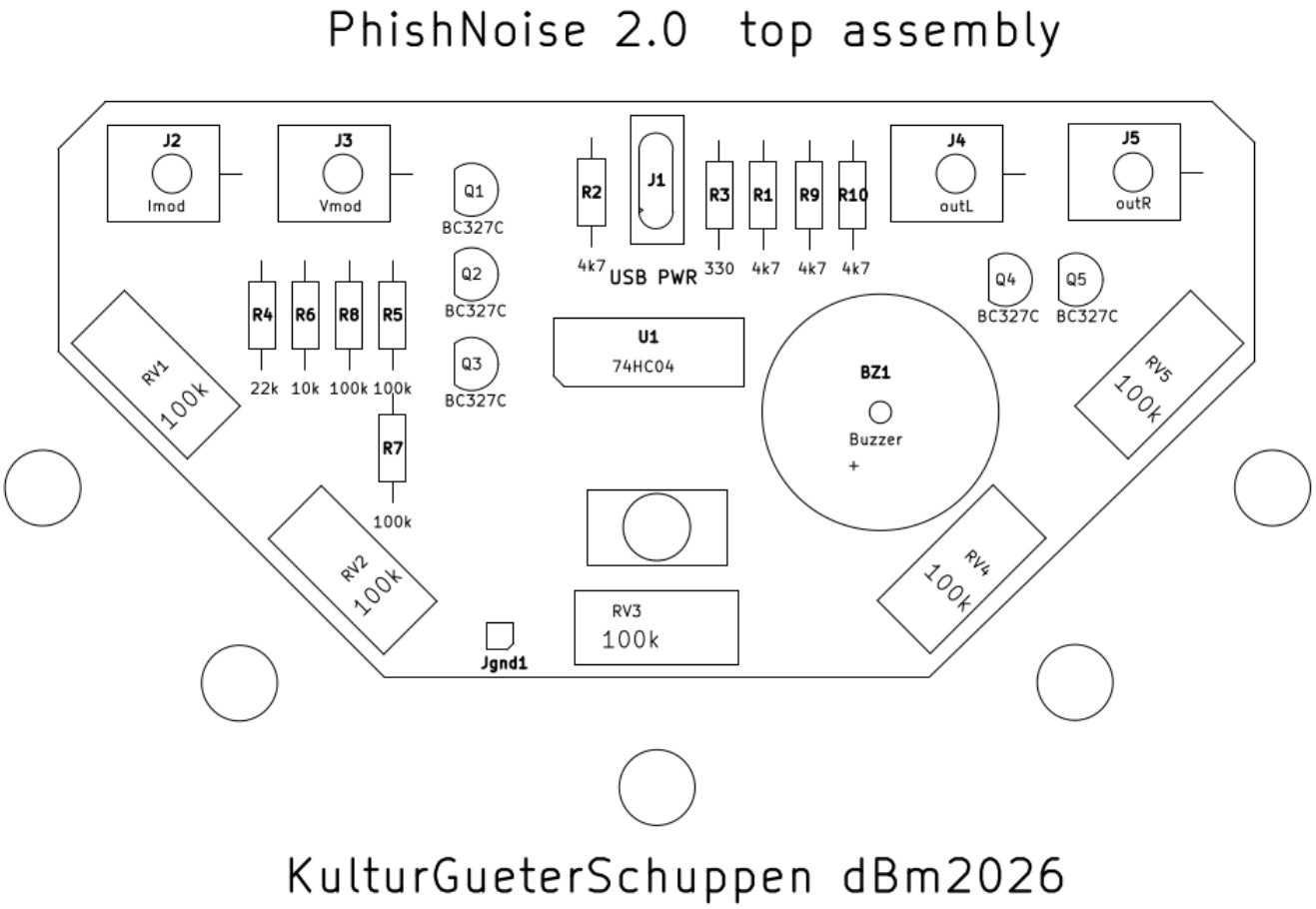
all capacitors are SMD types and located on the solder side. For some workshops the PCBs come with capacitors soldered in place already. Then you can proceed with the next step. If not, no worries, there a only 5 beginner friendly big sized (0805, 1210) capacitors to solder. The 1uF has 2 options : as C4 in 0805, or as C40 in 1210 size. C6 is optional, a matter of (sound) taste :-)



- set 1 solder dot for each capacitor
- take the capacitor with the SMD tweezers in one hand, move it to the pads, and solder it with the solder iron in the other hand to the existing solder dot
- change tweezers against solder tin and solder the other sidevof the capacitor
- repeat this for all SMD components and check the the solder joints before you go to2)

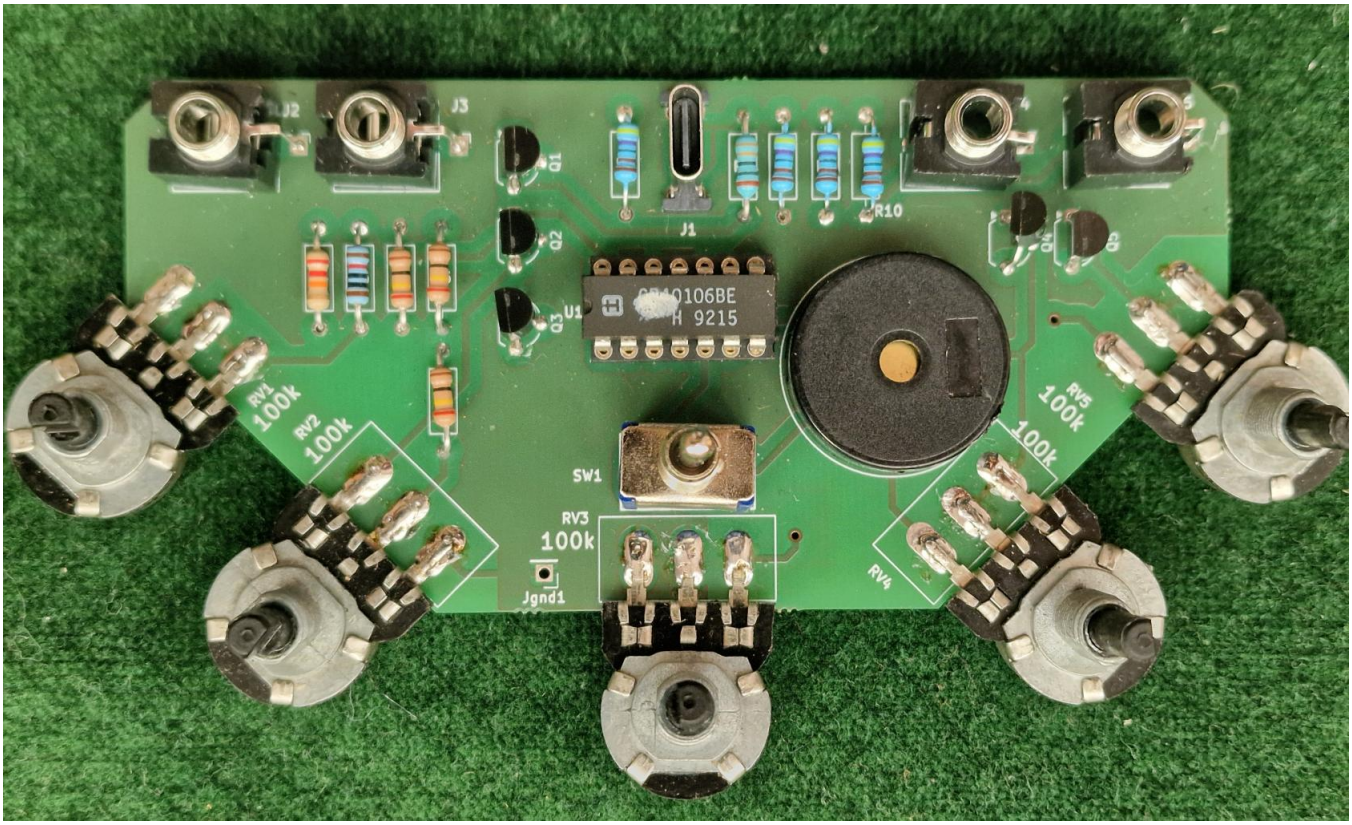


2) THT assembly



- solder the components in a flat to high order. Populate resistors first. Check color codes before soldering

- next is the chip socket with the chip. Check the direction and that all 14 pins of the chip are in the socket and all socket pins show up on the solder side before soldering !
- then solder the piezo buzzer. There should be no gap between PCB and buzzer
- insert all 5 transistors. Keep the height equal or below the height of the buzzer, otherwise the front panel will not fit
- now the 4 jacks. They must touch the PCB too, so they will have the same height (9mm) as the buzzer
- now the 5 potentiometers, solder 1 pin first for each potentiometer, then check if they all fit the front panel. If so, solder the other pins. Take your time, soldering the potentiometer pads needs lots of heat
- next is the switch. Check that it sits straight and without vertical gap (same height as buzzer/jacks) before soldering it
- finally the USB-C connector. Before inserting it, check that all pins are straight and not bend or broken. Push connector on PCB until base touches the PCB. Double check that all pins are visible on the solder side before soldering the first



3) Test and final assembly

now it is time to make a functional test. Connect PhishNoise to a USB power supply and the output jacks with audio cables to a sound system and enjoy first noise :-)

If you want to select worlds best sounding hex inverter, do it right now. An additional socket is recommended if you want to compare more than 3 chips to avoid damaging the soldered socket. A ZIF socket would be perfect.

Then the front panel can be mounted. Remove all screws from potentiometers,switch and jacks. Position the front panel. Check that it must sit on all 4 jacks, the switch and the buzzer. then you can fix it by tightening the nuts for jacks and switch. Potentiometer nuts are optional; don't use force because there is no distance spacer and the potentiometers would bend. Instead fix the potentiometer nuts with a small drop of super glue.

Buy a matching fish can. Eat the fish, bon appetit ! clean the fish can and insert PhisNoise module. Glue the front panel into the fish can only after you have checked all functions. Have fun playing it !

downloads :

PhishNoise SMD assembly [.pdf]

PhishNoise THT assembly [.pdf]

PhishNoise schematics [.pdf]

PhishNoise front panel [.dxf]



PhishNoise V1 2025



PhishNoise V2 2026

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