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NEINOHNEIN CLAP v1.0

a DIY clone of the TR-909 Clap

ASSEMBLY GUIDE v1.0

HARDWARE v1.0

TR-909 is a trademark of Roland

Technical Notes

The 909 clap is one of those iconic sounds that made electronic music what it is today! Unfortunately though, Roland did not incorporate a lot of control over the sound in the module. Actually, it just had a volume control in the TR-909!

I have played around with the circuit a bit though and added some modifications to the PCB so you can warp and bend the sound quite a bit. Some fun sounds can occur by playing with these controls, and, of course, you can have that iconic sound that made itself so popular in dance music with the right control settings.

The use of 2.5 or 5% tolerance film capacitors and 1% metal film resistors is recommended. This will ensure that your module performs the same way the original designers intended for it to sound, as it places component values closest to the chosen value in the schematic.

If you really care about purity with respect to the TR-909, you may want to run this module on 15V as well. I have not compared to see if there are any discernable differences as mine sound great at 12V and make me happy as is.
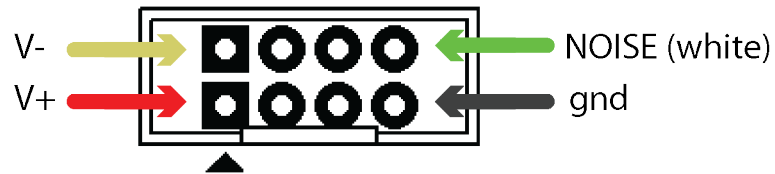
Noise Generator

The TR-909 featured a common white noise generator in it which a lot of the drum modules in the TR-909 shared. Unfortunately, the chips for this noise generator are now obsolete so obtaining them can sometimes be annoying (though they are still quite plentiful). For this reason, I have designed the PCB so that you can choose to install or leave out the additional "noise card" that stacks on the 2x4 .1" pin header on the PCBs which feature noise in the circuit. In order to share a noise generator, you just make sure one of the modules DOES have a noise generator circuit installed, then chain the PCBs together behind the panel via the pads called "RAW" on each of the PCBs. Both these pads are the same connection -- they're just duplicated for easy "daisy chaining".
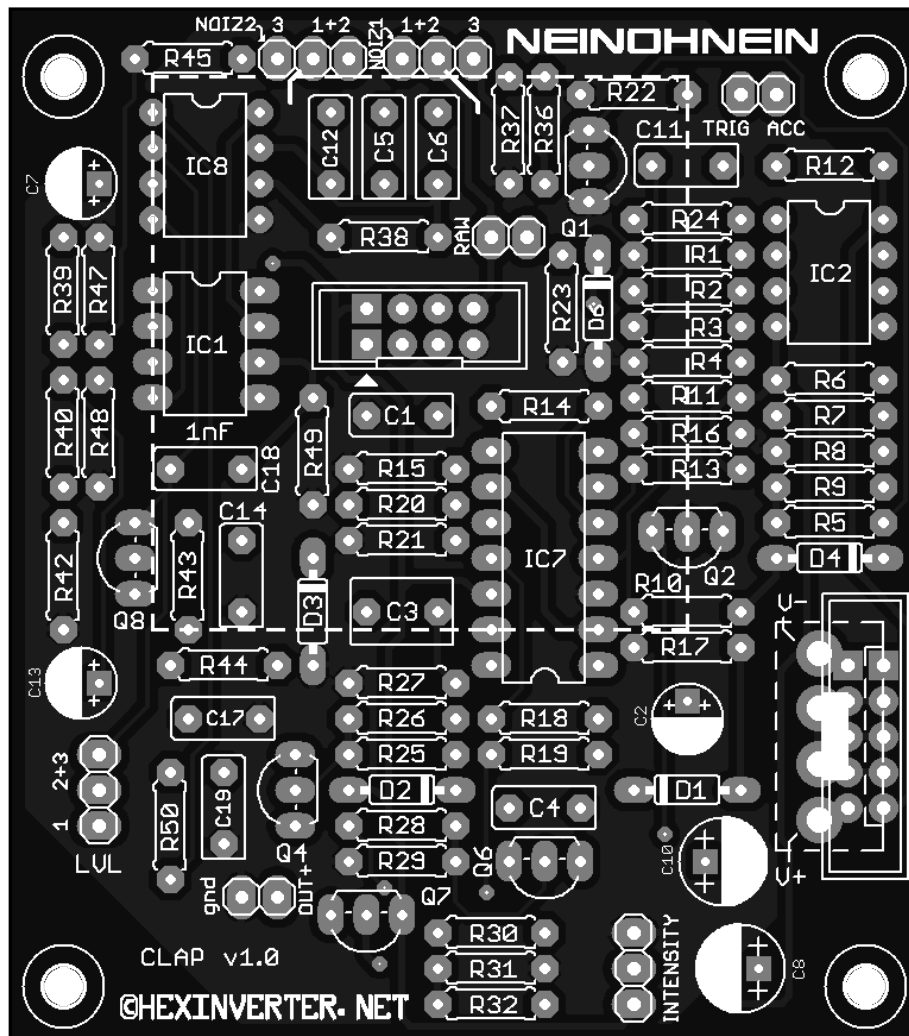
You might want to try external noise sources with some of the drum modules. The clap for example is an excellent candidate to have a pitch-controllable noise module plugged into. On the following page is the pinout of the noise connector on the NeinOhNein PCBs, so you can patch into this if you want to experiment with different noise sources. PLEASE NOTE: the noise input is NOT BUFFERED. Use at your own risk, or add a buffer yourself! :)

NEINOHNEIN
Noise Connector Pinout

V- → [   ]   NOISE (white) ←
V+ → [   ]   gnd ←

Panels are/will be available at
Re:Synthesis (click) for this project.

Control/Panel Descriptions

LEVEL -- This controls the volume of the clap sound.

NOISE1 -- This controls the amount white noise coming into the entire circuit from the noise generator. It can dramatically affect the way the clap sounds.

NOISE2 -- This controls the amount of white noise feeding into the VCA in the clap circuit. It can dramatically affect the way the clap sounds.

INTENSITY -- This tuning point from the original clap schematic adjusts the offset on the VCA. It acts as a pseudo-volume control for the "hand clap" part of the clap sound, and also introduces a sort of decay effect at different positions. You can get some pretty weird sounds by adjusting it so I thought it fun to bring out to the panel!

Accent -- This is an analogue input that responds to approximately 5V-supply control voltage. Higher voltages mean the drum sounds punchier and louder. This input is internally tied to +V so that it will always sound the strongest possible if nothing is plugged into the jack.

Trigger/Gate -- Input either a trigger or gate around 3.5V or higher to trigger the drum module.

Output -- This is the sound output for the module.

POTENTIOMETERS VIEWED FROM FRONT

Noise 2
B100k
1 2 3

Noise 1
B100k
1 2 3

Trigger
GND signal

Accent
GND signal

Level
B50k
1 2 3

NOIZ2 3 1+2 NOIZ1 1+2 3   NEINOHNEIN

R45   C12 C5 C6   R37 R36   R22   C11   TRIG ACC

IC8   R38   RAW   Q1   R24   R12
                              IR1
R39 R47   R23   D5   R2   IC2
IC1   R3
              R14   R11   R6
C1   R16   R7
1nF   R15   R13   R8
R40 R48 C18 R19 R20   R9
                  R21   IC7   R5
R42   R43 C14   R10 Q2   D4
Q8   D3 C3   R17
R44
C13   R27
C17   R26   R18
          R25   R19
      R50 C19   D2   C4   D1
1 2+3   R28
1   R29
LVL   Q4 Q6 Q7
gnd OUT+   R30
CLAP v1.0   R31   INTENSITY
@HEXINVERTER.NET   R32

Output
GND signal

Intensity
B50k
1 2 3