

THE ARCADIATOR

Build Document last updated march 2018
for PCB version 3.0

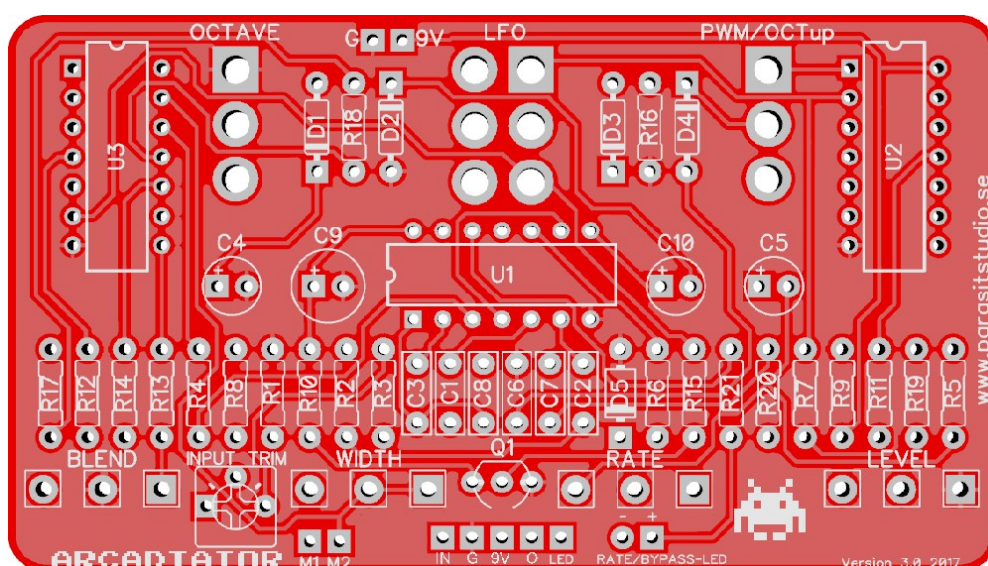
Make sure you have the right version build document for your PCB!

The Arcadiator is an insane 8-bit sounding fuzz. It does octave down (one or two octaves), alternating octaves, octave up and pulse width modulation.

The pulse width modulation signal blended with the octave down gives it a retro game'ish sound that brings backs memories of the 8-bit era of videogaming. With all switches down it can also do ear-ripping octave up fuzz.

This circuit works best with high output pickups. It is a gated circuit by nature of the CMOS logic. If you are using single coils and need more sustain, try a boost or compressor in front. To improve tracking of the octave down, use your neck pickup with the tone rolled off.

Happy playing!



Changelog from version 2.5

- The "MODE" switch is removed. The same function is now part of the LFO switch which now has 3 switch positions (it still has all the same functionality as before)
- New feature: The "OCTAVE" switch is now a 3 position switch aswell. In the middle position we now have both octaves at the same time (not possible with the old Arcadiator)
- Blend mod option removed (a clean blend utility board will be released for a true clean blend that will work well with most effects, including the Arcadiator)

Controls

SWITCHES

- LFO:
 - Up position – Alternating octaves modulation
 - Middle position – LFO Off
 - Down position – Choppy octave
- PWM: This toggles between Pulse modulated signal or Octave up
- OCTAVE:
 - Up position – One octave down
 - Middle position – Both one and two octaves down
 - Down position – Two octaves down

POTENTIOMETERS

- RATE: Controls the rate of the LFO / alternating octaves modulation
- WIDTH: Controls the pulse width or the intensity of the octave up
- BLEND: Blends between PWM/Octave up and Octave down
- VOLUME: Controls the overall volume

The PCB mounted trimmer sets the input sensitivity from very sensitive and glitchy (with a long sustain) to very gated (with a shorter sustain). Adjust it until you have a good balance between sustain and gate.

General builds tips

- Solder the low profile components first, from short to tall height. Recommended order: resistors, diodes, IC socket, film-caps, electrolytics, pots and switches
- CMOS chips are very sensitive to static charges and can be easily damaged. It's a good idea to wear a anti-static wristband or at least avoid wearing a wool jumper and petting your cat/dog while building...
- Always use sockets for IC chips and transistors to avoid heating them directly. It also makes it much easier to swap them out if needed.
- Pay special attention to the orientation of the diodes and electrolytics.
- The square pad represents pin 1 of each pot.
- **There are a LOT of switches and pots on this PCB. Be sure to place them in the PCB without soldering first, THEN place them in your drilled enclosure. Gently tighten the nuts to the enclosure, then solder LAST. Otherwise, it will be really hard to get this in your enclosure.**
- This PCB's is designed for 16mm Alpha PCB mounted angeled pots. You could also use solder lug type and just tack some "legs" with short pieces of wire to each pot to mimic a PCB mount type. Again, it is a very good idea to drill holes in your enclosure first, and mount the pots with the nuts BEFORE soldering the pots to the PCB. This ensures you won't put a lot of stress on the PCB.

Wiring

For more info on how to wire up the stompswitch, jacks ect, please visit the Parasit Studio website and download the PDF called "offboard wiring". You can find it here:

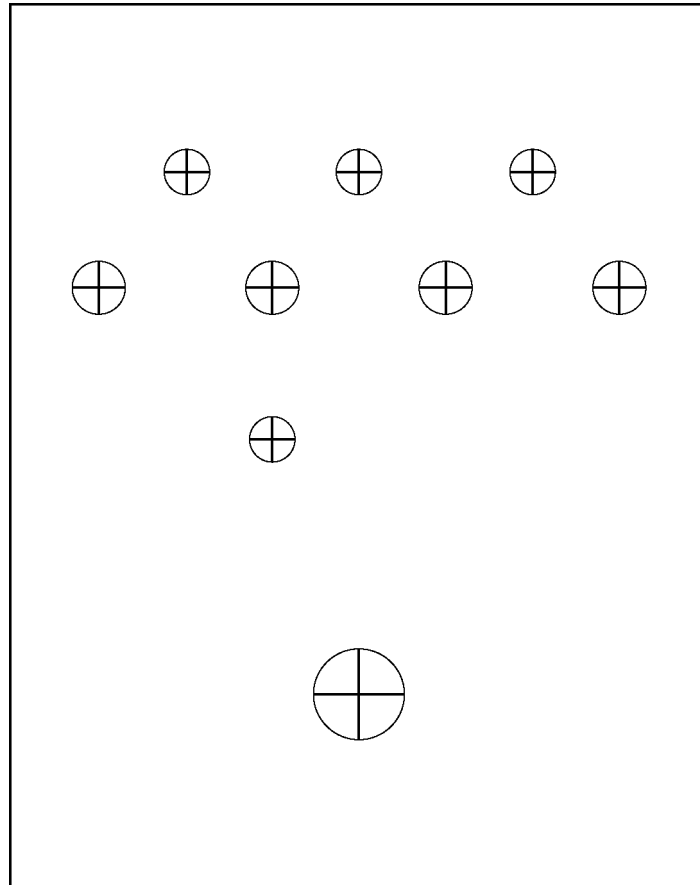
<http://www.parasitstudio.se/build-docs.html>

The Arcadiator 3.0 Bill Of Materials (BOM)

Resistors		Capacitors		IC's	
R1	1M	C1	100nF	IC1	CD4069UBE
R2	1M	C2	2.2nF	IC2	CD4024BE
R3	1M	C3	4.7nF	IC3	CD4070BE
R4	1M	C4	1uF	Transistor(s) Q1 2N3904	
R5	10K	C5	1uF		
R6	27K	C6	10nF		
R7	100K	C7	100nF		
R8	47K	C8	100nF	Potentiometers BLEND B50K WIDTH C500K RATE B250K VOLUME B100K Trimmer 200K	
R9	1M	C9	100uF		
R10	4.7K	C10	2.2uF		
R11	100K	Diodes D1 1N4148 D2 1N4148 D3 1N4148 D4 1N4148 D5 1N4001 1x LED			
R12	100K				
R13	100K				
R14	100K				
R15	10K				
R16	22K				
R17	47K				
R18	100K				
R19	10K				
R20	47K				
R21	15K*			Switches OCTAVE SPDT on/off/on PWM SPDT on/on LFO DPDT on/off/on	

- * Current Limiting Resistor for the bypass/rate indicator LED. Use the appropriate value for your LED type.
- The board mounted LED works as both a bypass indicator and LFO rate indicator LED, as the LED only blinks when playing and stays lit otherwise when the pedal is engaged, and off when disengaged.
- The "LED" hole (next to the output connection hole) should be connected to the ground for LED bypass on your stompswitch (if not using the optional 3PDT board).
- Other things that are not included in the BOM but good to have: enclosure, input and output jacks, DC jack, stomp switch, led bezel and knobs.

Drilling template (1590BB)



- Use at your own risk! This template is approximate.
- Make sure your printer isn't doing any scaling / is set to 100% print size.
- Drill footswitch, DC jack and input/output jacks to your own preference.
- **Measure and confirm before drilling!**
- Read the build tips section highlighted in red before soldering pots and switches to the PCB.

OPTIONAL MODS

MODBOARD (optional LFO daughterboard)

M1/M2 connections can be connected to the optional Modboard to modulate the Pulse Width (the width pot function).

For this mod you need:

- The Modboard daughterboard PCB with components
- One SPDT (on/on) switch

Read more about it in the Modboard Build Document.

Troubleshooting

There's always a chance of running into trouble. To minimize error, follow the BOM and general building tips carefully. Take your time and don't rush. Take a break now and then. Use good solder, and it helps to have a decent soldering station insted of a cheap iron.

Musikding DIY kit

If you have bought the Musikding DIY kit and have recieved a faulty faulty, incorrect or missing component, please contact musikding.

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Smallbear Electronics / Synthcube DIY kit

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smallbearelec@synthcube.com

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Schematic

