

INTO THE UNKNOWN

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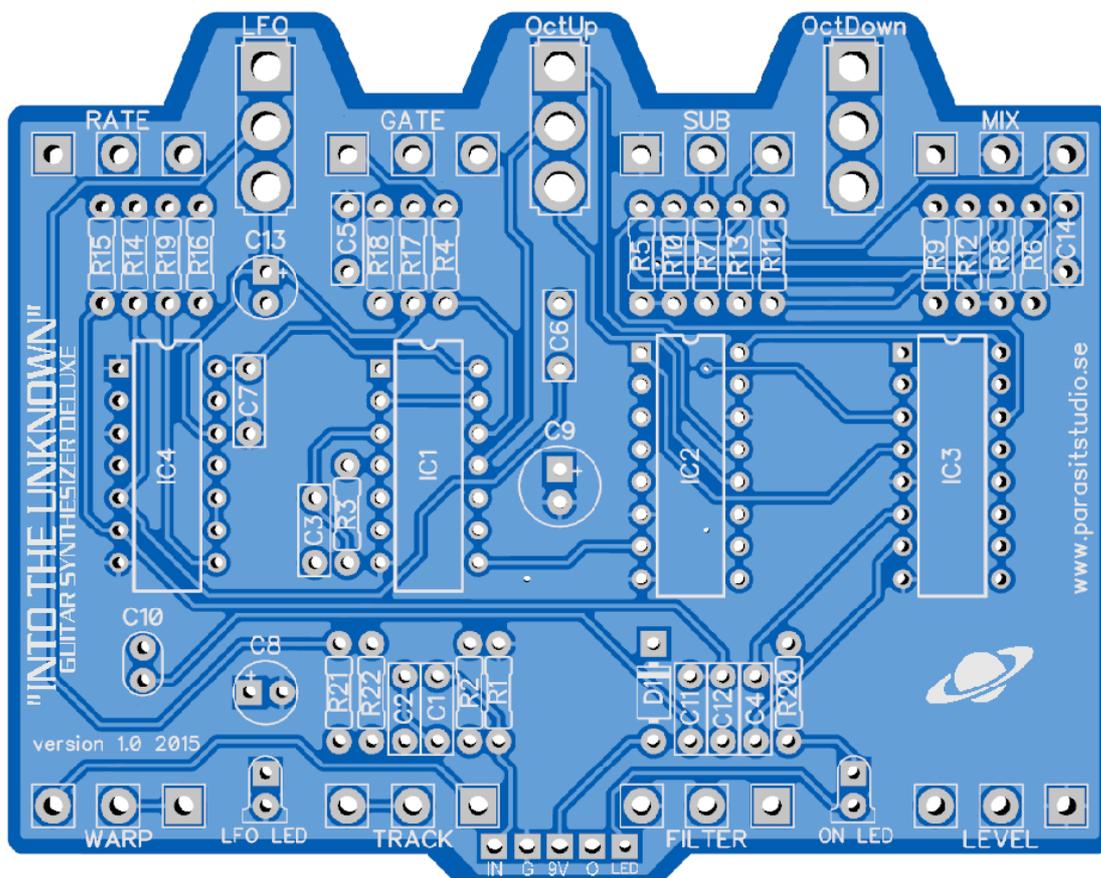
Version 1.0 2015

'Into the Unknown Guitar Synthesizer Deluxe' is a CMOS based fuzz centered around the CD4046 PLL (phase locked loop) chip and a CD4015 shift register chip.

It can do brutal fuzz, octave down and octave up, self oscillations, theremin sounds, flanger'ish modulation and more!

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!



CONTROLS

KNOBS

MIX - Blends between fuzz and octave up. Goes from straight square wave fuzz to octave up or blend between both. *Only the octave up is affected by the warp, track and LFO.*

SUB - Controls the amount of octave down added to the signal.

GATE - Controls the input sensitivity. From very glitchy to gated and controlled. Turned all the way down (CCW) the circuit will oscillate by itself. Play around with the track, warp, lfo controls and your guitar knobs to change the sound and behaviour of the oscillation (*works best with the pedal directly after your guitar*).

RATE - Controls the speed of the LFO. *The modulation only affects the octave up.*

LEVEL - Controls the overall output volume.

FILTER - Controls the cutoff frequency of the resonant lowpass filter. Turn it counter-clockwise to cut out the high end or sweep it manually up and down for a cool effect.

TRACK - Controls the speed of the octave up tracking.

WARP - I don't know how to describe this control... It's interactive with the track control and has a strong effect on the character of the modulation. Turn up both Track and Warp for Theremin sounds!

SWITCHES

OctD - Toggle between one or two octaves down

OctU - Toggle between one or two octave up

LFO - Triangle wave mode (up), Off (middle) or Square wave mode (down)

[Tweak the knobs and venture Into the Unknown!](#)

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.
- Mount the pots, switches and LED's to the back side (solder side) of the PCB and solder them from the front side (component side).

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>

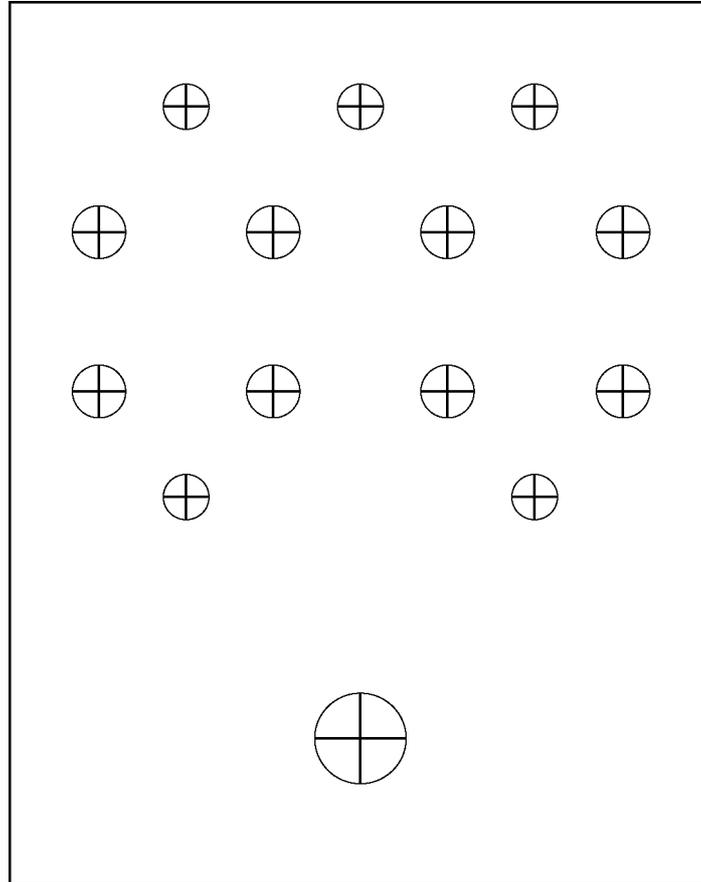
Into The Unknown Bill Of Materials (BOM)

Resistors		Capacitors		IC's	
R1	1M	C1	100nF	IC1	CD4069UBE
R2	1M	C2	4.7nF	IC2	CD4015BE
R3	2.2M	C3	100nF	IC3	CD4046BE
R4	1M	C4	33nF	IC4	CD4069UBE
R5	10K	C5	4.7nF	Potentiometers	
R6	10K	C6	100nF		
R7	68K	C7	100nF		
R8	470K	C8	2.2uF		
R9	100K	C9	100uF		
R10	100K	C10	220pF		
R11	47K	C11	6.8nF		
R12	47K	C12	100nF		
R13	100K	C13	22uF		
R14	220K	C14	2.2nF		
R15	220K				
R16	10K				
R17	470K				
R18	1M				
R19	2.2K				
R20	4.7K*				
R21	10K				
R22	4.7K*				
				Switches	
				OctDown	SPDT on/on
				OctUp	SPDT on/on
				LFO	SPDT on/off/on
				Diodes	
				D1	1N4001
				2x LED's	

- This PCB is designed for two board mounted LED's, one for bypass indication and one LFO rate indicator.
- * These are current limiting resistors for the LED's and suggested values that usually works good with regular diffused LED's, but the values can differ depending on which type of LED you are using. For clear superbright LED's it's probably better to use resistors in the 10K – 22K range (*I used 18K resistors for my fully assembled pedal*).
- The "LED" hole (next to the output connection hole) should be connected to the ground for LED bypass on your stompswitch.

Other things not included in the BOM but good to have:
enclosure, input and output jacks, DC jack, led bezels, 3PDT switch and knobs.

Drilling template (1590BB)



- This template is approximate. Use at your own risk!
- Make sure your printer isn't doing any scaling / is set to 100% print size.
- Drill DC jack and input/output jacks to your own preference.
- *I measured 20mm from the edge of the enclosure to the center of the input jack and 37mm from the edge of the enclosure to the center of the DC jack (on the right side, left side when you have the enclosure upside down).*
- **Measure and confirm before drilling!**
- Read the build tips section highlighted in red before soldering pots and switches to the PCB.

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 instead of a cheap iron.

If you are still having trouble, please visit the madbean forum Parasit Studio subforum section and ask for help there.

<http://www.madbeanpedals.com/forum/index.php?board=84.0>

If you have bought the Musikding kit and have received a faulty or missing component, please contact musikding directly.

<https://www.musikding.de/kontakt.php?lang=eng>

Schematic

Please visit the madbean forum Parasit Studio subforum section for schematic and more info on how this circuit works. If you want to modify and/or make your own PCB layout, don't forget to credit Parasit Studio. Thank you!

Terms of use

PCB's from Parasit Studio are intended for DIY use only. Commercial resale is not allowed. It's meant for personal use only, which means that it's not allowed to build a lot of pedals and sell them for profit to strangers using public forums and craigslist ads. However, it's totally ok to build a few pedals and sell to your friends and bandmates. After all, that's what this hobby is about. DIY or DIE!

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