Anglerfish DIY Kit User Manual

How it works:

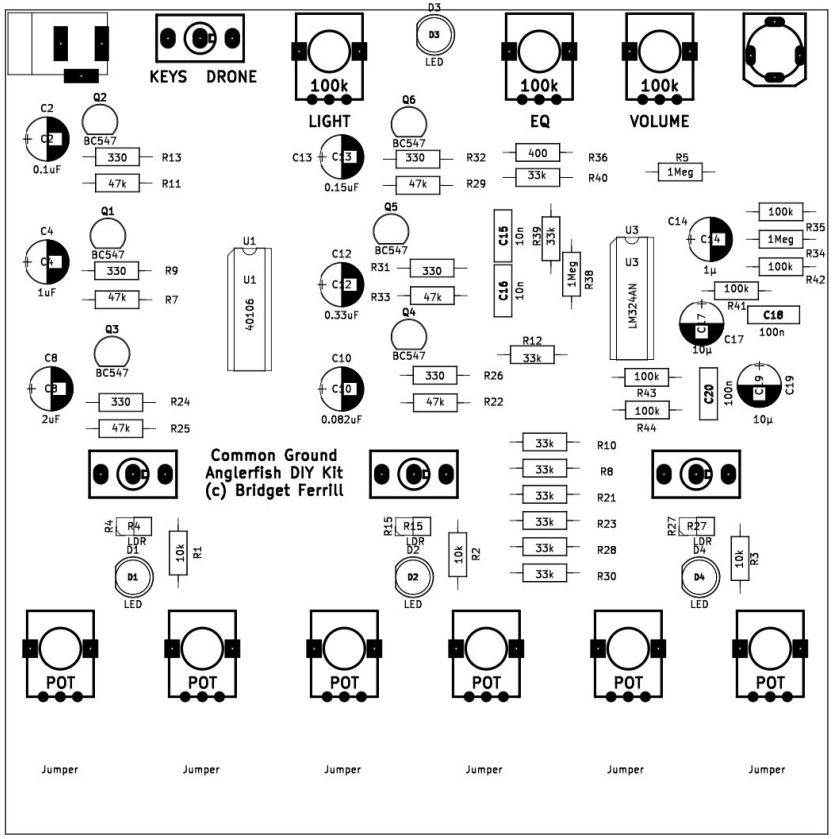
- 6x touch plates serve as VCA/keys for 6x square wave oscillators
- Pitch of each oscillator is determined by corresponding potentiometers
- 3x switches open up light-sensitive connections between adjacent pots. This means both oscillators' pitches will bend according to the amount of light the photocells receive (leds indicate strength of current flowing between the pots)
- Tone pot controls a shelf EQ, with cutoff frequency at 482 HZ
- The dangling LED is there for you to use to play the light-sensitive circuit. Adjust the brightness of the LED with the pot next to it.
- DRONE/KEYS switch chooses between either all 6 voices playing constantly or voices playing only when activated with keys
- Use 9V center positive PSU

Hack Points:

- To change the pitch range of each voice, trade out C2, C4, C8, C10, C12, and C13 for other value capacitors. Smaller values = higher frequency range
- To change the sensitivity of the light-sensitive connection, switch out R1-3
- To change the cut-off frequency of the EQ, change C15-16 and R39-40: F = 1/2πRC
- Add a front panel using the template available at www.commonground.community. You'll have to insulate the legs of the LDRs!

TIPS:

- Dampen your fingers if you're not getting a clear response from the keys
- Use a flashlight or other strong light source for more extreme modulation



Questions? Need Help?
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KOMA Elektronik GmbH does not offer warranty on DIY products.

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Parts List

Resistors:
6x 330Ω (Orange Orange Black Black Brown)
1x 390Ω (Orange White Black Black Brown)
3x 10kΩ (Brown Red Black Black Brown)
9x 33kΩ (Orange Orange Black Red Brown)
6x 47kΩ (Yellow Purple Black Red Brown)
5x 100kΩ (Brown Black Black Orange Brown)
3x 1MΩ (Brown Black Black Yellow Brown)
3x Light Dependent Resistors ("LDR")
9x B100kΩ Potentiometers

Capacitors:
2x 0.01uF (103)
1x 0.082uF (823)
3x 0.1uF (104)
1x 0.15uF (154)
1x 0.33uF (334)
2x 1uF
1x 2.2uF
2x 10uF

3x UV LEDs
1x White LED
6x BC547 Transistors
1x LM324AN Chip
1x CD40106BE Chip
2x IC Sockets
2x Wires
4x SPDT Switches
1x Power Jack
1x Audio Jack
4x Rubber Feet
1x PCB

Build Instructions

1. Place and solder all resistors, including the Light Dependent Resistors. Check the values with a multimeter, or by reading the color code, as described in the Parts List. Once soldered, trim all the metal legs off.

2. Place and solder all ceramic capacitors. Keep an eye out for the capacitors circling the 40106 chip — some are ceramic, even though all the footprints indicate electrolytic capacitors. Check the capacitor values in the Parts List. Once soldered, trim all the metal legs off.

3. Place and solder the empty IC sockets.

4. Place and solder the electrolytic capacitors. Be sure to put them in the right way — the long leg is positive! Once soldered, trim all the metal legs off.

5. Place and solder the 3 UV LEDs down by the touchpads. (There are 4 LEDs in your kit — look at them from above, you'll be able to tell that 3 are the same and 1 is different. Save the different one for later). Again, be careful about polarity. The long leg is positive. Once soldered, trim all the metal legs off.

6. Now place and solder the 6 transistors. Make sure to get the orientation right — the flat side on the PCB goes with the flat side of the transistor. Once soldered, trim all the metal legs off.

7. Place and solder the power and audio jacks.

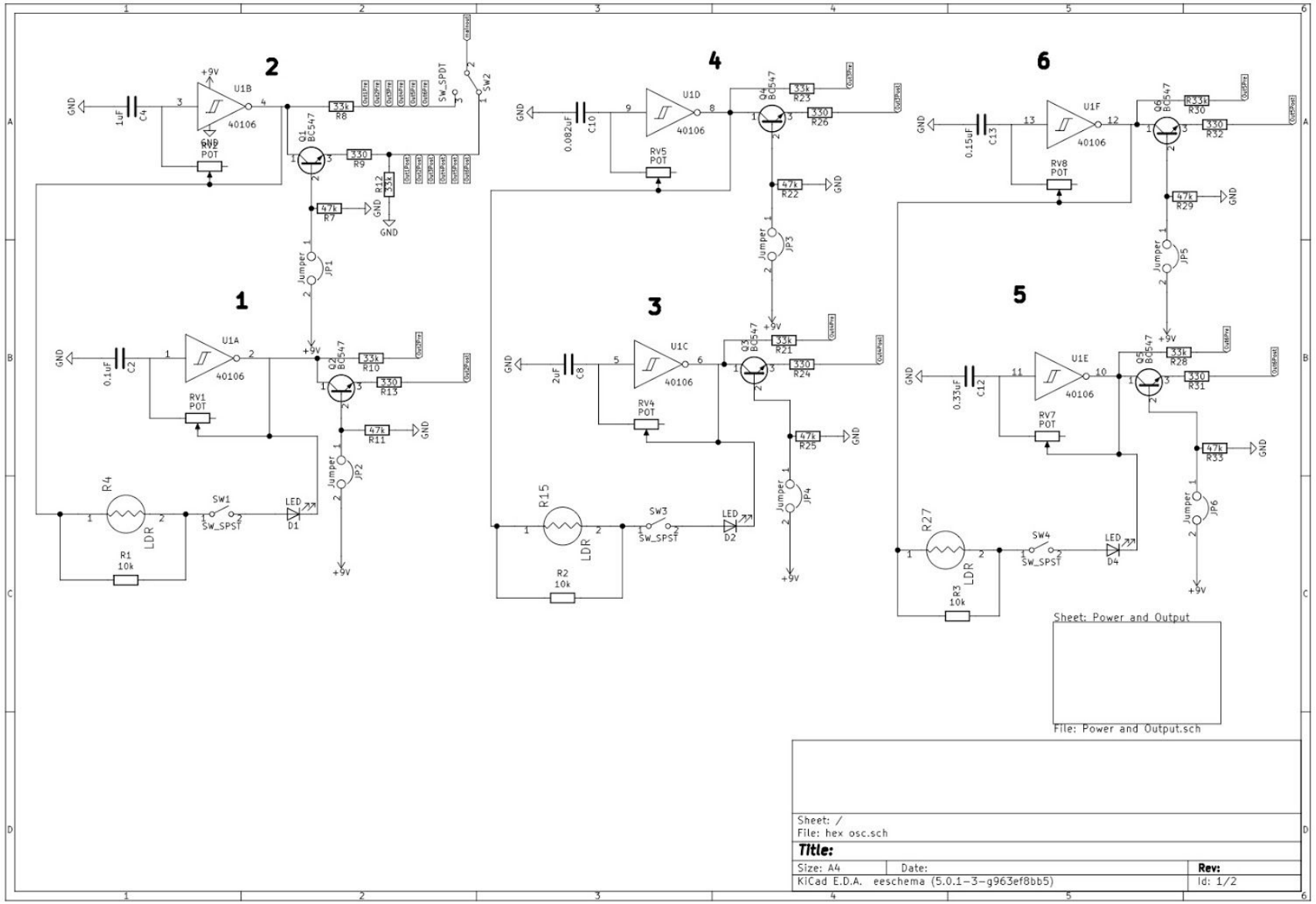
8. Place and solder the switches.

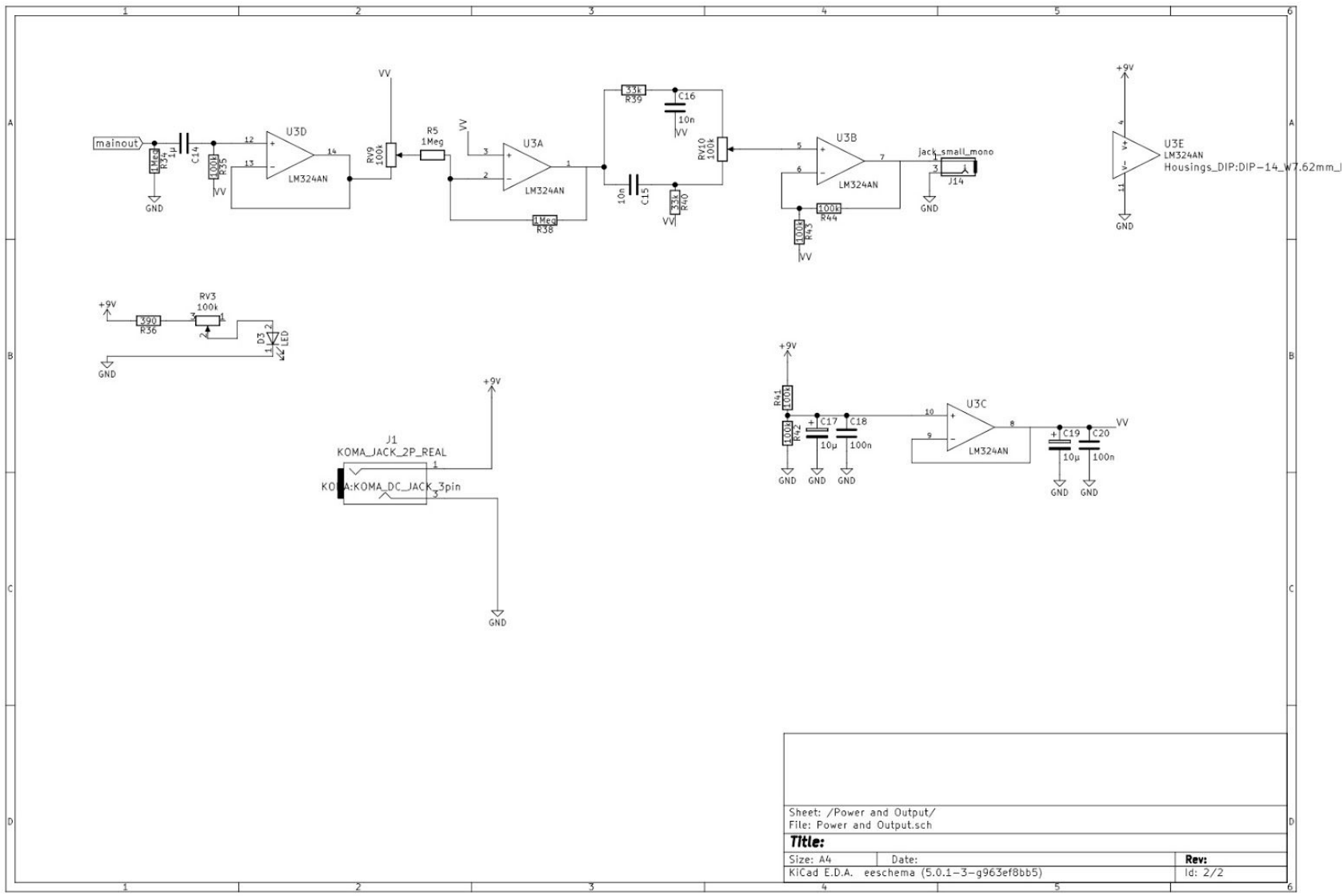
9. Place and solder all the potentiometers.

10. Finally, twist the 2 wires together. Solder them into the LED spot D3. Then, solder the white LED onto the other end of the wires. Check polarity! Solder the wires high enough up on the legs of the LED that you can trim the legs off and remove any chance of them touching and shorting out the LED.

11. Put the chips into their sockets.

12. Stick the 4 rubber feet on the back of the PCB, in the corners.


1
2
3
4
5
6
U1A
U1B
U1C
U1D
U1E
U1F
40106
+9V
GND
1uF
C4
0.1uF
C2
2uF
C8
0.082uF
C10
0.33uF
C12
0.15uF
C13
RV1 POT
RV2 POT
RV4 POT
RV5 POT
RV7 POT
RV8 POT
Q1 BC547
Q2 BC547
Q3 BC547
Q4 BC547
Q5 BC547
Q6 BC547
33k R8
330 R9
33k R12
47k R7
33k R10
330 R13
47k R11
33k R21
330 R24
47k R25
33k R23
330 R26
47k R22
33k R28
330 R31
47k R33
33k R30
330 R32
47k R29
Jumper JP1
Jumper JP2
Jumper JP3
Jumper JP4
Jumper JP5
Jumper JP6
R4 LDR
R1 10k
R15 LDR
R2 10k
R27 LDR
R3 10k
SW1 SW_SPST
SW3 SW_SPST
SW4 SW_SPST
SW_SPDT SW2
LED D1
LED D2
LED D4
Sheet: Power and Output
File: Power and Output.sch
Sheet: /
File: hex osc.sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. eeschema (5.0.1-3-g963ef8bb5)
Id: 1/2


mainout
1Meg
R34
1µ
C14
100k
R35
U3D
LM324AN
GND
VV
RV9
100k
R5
1Meg
U3A
LM324AN
1Meg
R38
33k
R39
C16
10n
10n
C15
33k
R40
RV10
100k
U3B
LM324AN
100k
R44
100k
R45
jack_small_mono
J14
+9V
U3E
LM324AN
Housings_DIP:DIP-14_W7.62mm_
RV3
100k
390
R36
D3
LED
J1
KOMA_JACK_2P_REAL
KOMA:KOMA_DC_JACK_3pin
R41
100k
R42
100k
C17
10µ
C18
100n
U3C
LM324AN
C19
10µ
C20
100n
Sheet: /Power and Output/
File: Power and Output.sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. eeschema (5.0.1-3-g963ef8bb5)
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