AQB_MOD

FX TYPE: Modulation Add-On

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1.5" W x 0.825" H
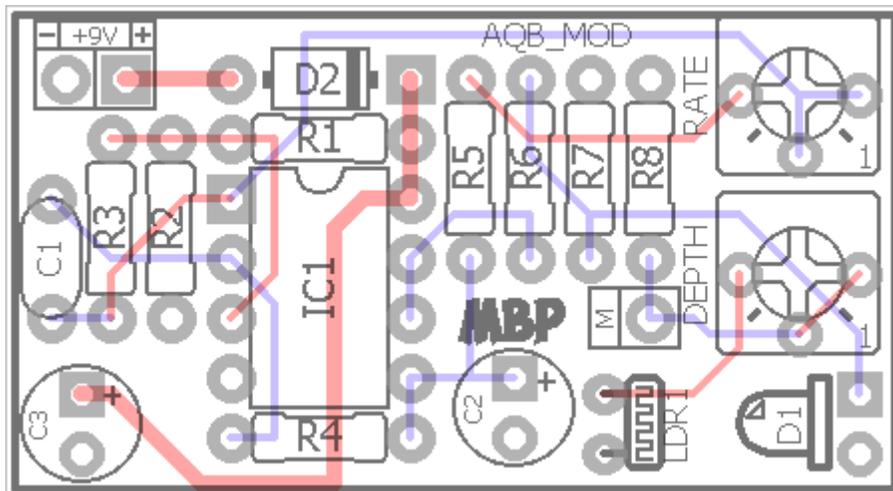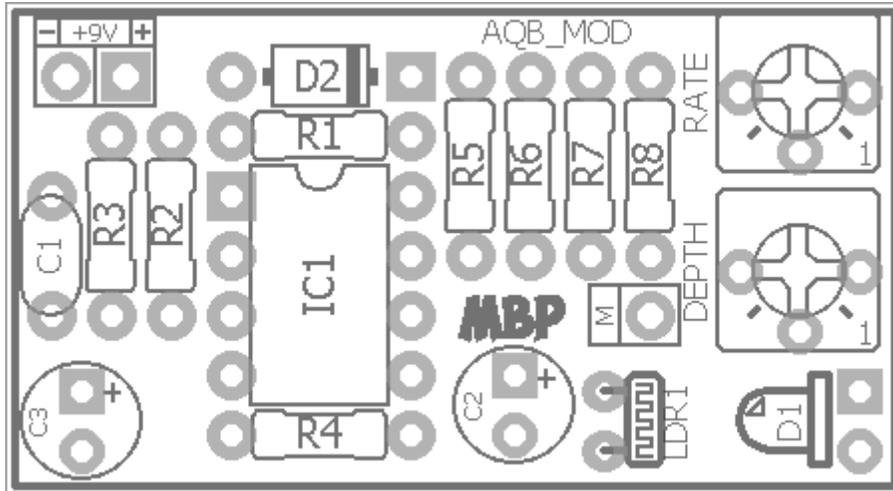
B.O.M.

Resistors		Diodes	
R1	220k	D1	LED
R2	220k	D2	1N4001
R3	220k	**Photocell**	
R4	220k	LDR1	9203
R5	4k7	**IC**	
R6	1k	IC1	TL062
R7	1k	**Pots**	
R8	220k	RATE	100k
Caps		DEPTH	100k
C1	10n		
C2	22uF		
C3	22uF		

Shopping List

Value	QTY	Type	Rating
1k	2	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
220k	5	Metal / Carbon Film	1/4W
10n	1	Film	16v min
22uF	2	Electrolytic	16v min
LED	1	Red, Diffused	3 or 5mm
1N4001	1		
9203	1	Photocell	
TL062	1		
100k	2	see notes	
SPST	1	or, SPDT	

- If using trimpots for both Rate and Depth, use the Bourns 3362P (like all other trims in MBP projects).
- If using regular pots, 16mm will fit if you move the mod board. However, a 12mm or 9mm will make for an easier fit. Linear taper is fine for both, but a C taper (reverse audio) is a little better for the Rate (spreads the rate changes out a little better).
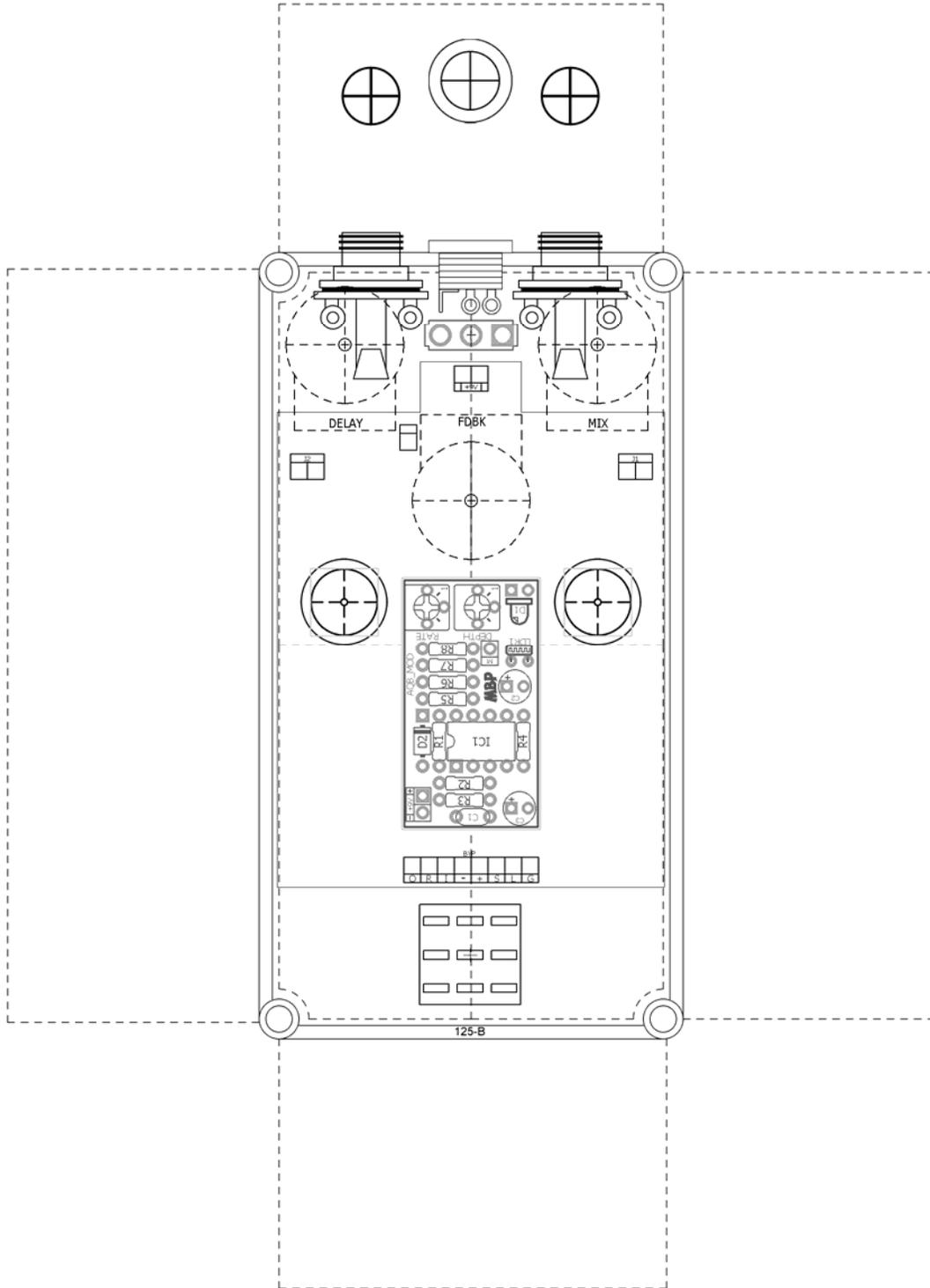
12mm Pots: http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-12mm-solder-terms/

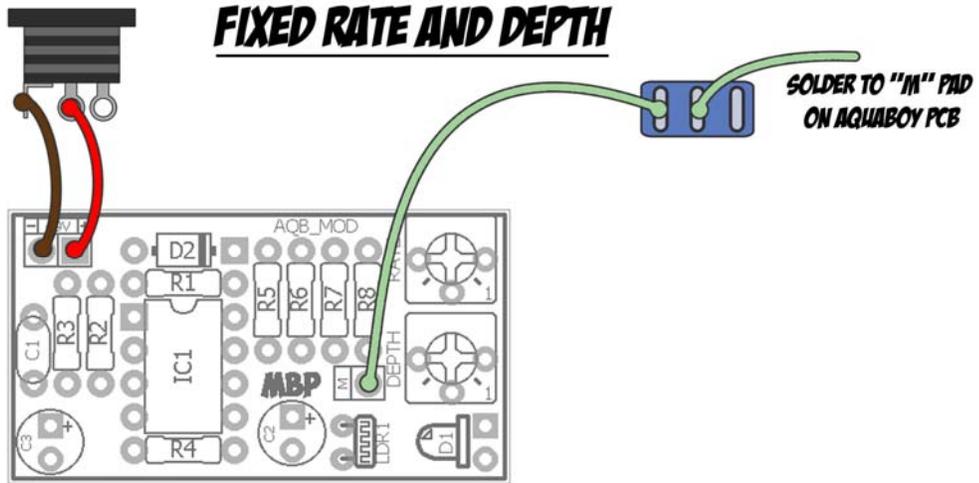9mm Pots: http://smallbear-electronics.mybigcommerce.com/alpha-single-gang-9mm-pc-mount/

9203 Photocell: http://smallbear-electronics.mybigcommerce.com/photocells-cds-5mm-diameter/

125B Drill Guide

5.52"W x 7.65"H

The MOD board should go UNDERNEATH the Aquaboy PCB.

Wiring

FIXED RATE AND DEPTH

SOLDER TO "M" PAD
ON AQUABOY PCB

VARIABLE RATE / FIXED DEPTH

SOLDER TO "M" PAD
ON AQUABOY PCB

VARIABLE RATE AND DEPTH

SOLDER TO "M" PAD
ON AQUABOY PCB

47k Resistor
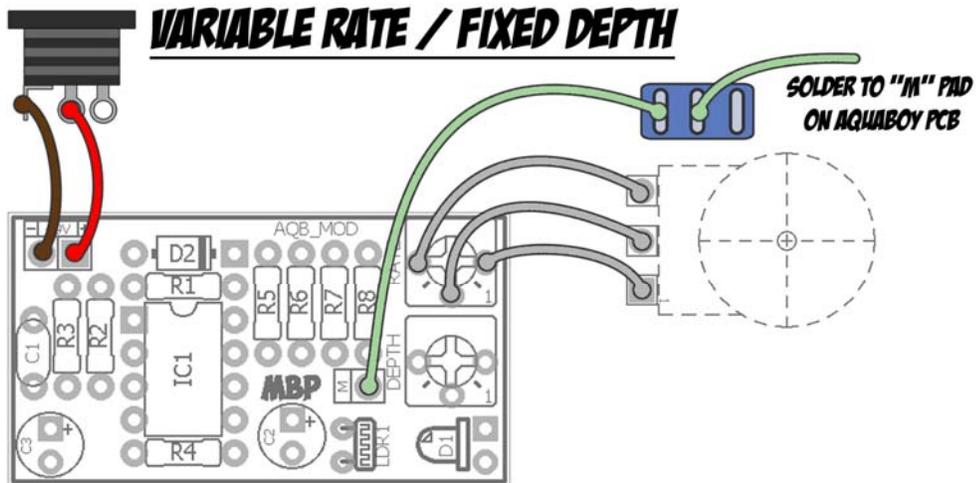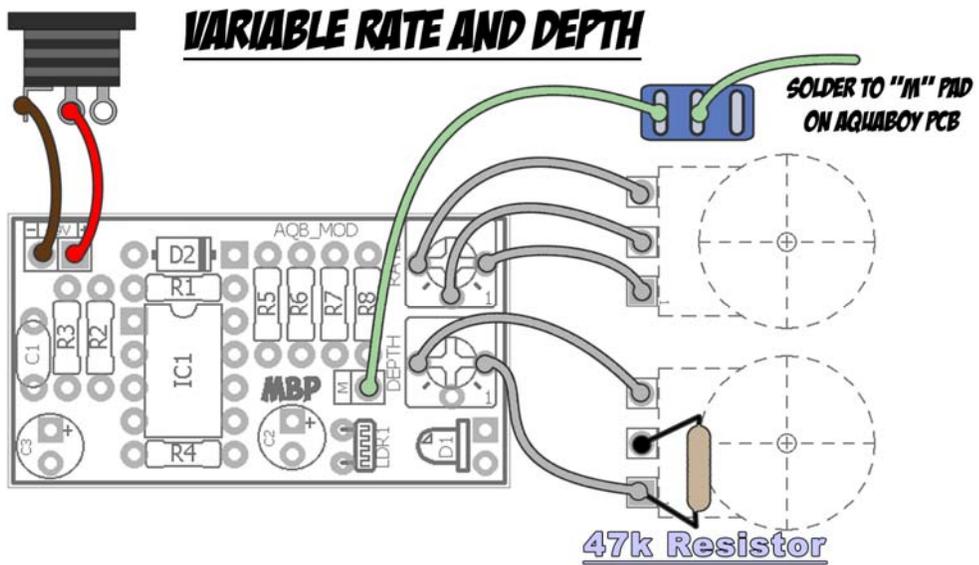
Overview

The AQB_MOD is an add-on modulation board for the Aquaboy project. It is based on the same mod board used in the original Aquaboy project from 2009. The focus of this add-on is simplicity and flexibility. It does not have some of the features of other delay modulation types (different waveforms, blinking LED, etc). This modulation add-on is optical and works by changing the variable resistance on the Aquaboy delay pot via a triangle wave.

Controls

Rate – Modulation rate from slow to fast.
Depth – Modulation depth from shallow to watery.

Options

There are three wiring options shown above depending on your preference.

- Option 1 fixes the modulation and uses trimpots for the Rate and Depth controls. Use this option when you only want one type of modulate delay (usually a slow rate and depth setting).

- Option 2 gives you a variable rate but fixed depth. Here you would set the depth trimpot pretty low (counter-clockwise) but have Rate control. This is the one I prefer.

- Option 3 gives you everything; variable rate and depth. It is necessary to use a stopper resistor in this case (the 47k across lugs 1&2 of the Depth pot) to prevent the variable depth control from going too far and causing noise (this happens when the Delay pot resistance is modulated beyond its optimal range).

You should use a switch as shown in the wiring diagram unless you always want the modulation on with the dely. In that case, just wire the "M" pads directly together on the AQB_MOD and Aquaboy PCBs.

Mods

The Rate control has a good range of slow to fast, but you can increase the fastest speed possible by lowering the value of R5. The correct value depends on how fast you want it, so I would socket that resistor if you are making changes.

Voltages

Pin8 should read about 9v, pin4 0v and all other pins will vary in their voltages periodically.

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