BLINKENLIGHTS ADSR - 4017 Envelope Generator



STATS

POWER +12V 13mA, -12V 13mA WIDTH 4HP HEIGHT 3U DEPTH 50mm

TOOLS

Soldering iron Wire clippers Wire stripper Oscilloscope (not essential, but useful when setting the peak CV level) Patch cables LFO / whatever you'll be using to gate the ADSR

ASSEMBLY

The PCB silkscreen shows the names and values of all the components. When I solder, I usually solder all the resistors, followed by all the diodes, then capacitors, IC sockets, pin headers, trimpots, jacks and the right-angled panel potentiometers. Finally, solder the LEDs when you test fit the front panel.

PJ-324MH Jacks The holes in the PCB for these jacks are very tight. This is deliberate, to make sure that the jacks are mounted precisely to fit the holes in the front panel. You will have to push carefully to fit these in, and please make sure that they're completely flush with the PCB.

Right Angled Alpha Pots These must be fitted with the bottom face of the pot completely flat against the PCB. Please clamp or hold the pots in place as you solder. I hold the pot firmly against the PCB as I solder the middle leg, then that joint holds it in place as I solder the other two legs.

Long / Short Toggle Switch Solder an ~80mm wire to each leg of the toggle switch. Solder the wire from the middle leg of the switch to the middle pad of SW1. Solder the other wires to the other pads of SW1. Mount the switch in the panel so that the leg connected to pad R faces right, and the leg connected to pad L faces left.

LEDs Before soldering the LEDs, test fit the front panel. You will need to bend the legs of each LED so that it fits through its hole in the front panel, whilst its legs fit into the holes in the PCB. Test fit the LEDs in their holes and gauge where you will need to bend their legs. Pay attention to the polarity of the legs.

SETUP

With the module on your bench, connect a 10-way Eurorack power connector to JP1 and turn on the power. Cross your fingers that you don't release the magic smoke.

When you power on the module, the Release LED should light continuously.

Turn the Attack, Decay and Release knobs all the way to the left (shortest Attack and Release). Turn the Sustain knob all the way to the right (highest Sustain level). Patch your LFO / whatever you'll be using to gate the module into the Gate In jack. If you have one, patch your oscilloscope into the CV Out jack. Set your LFO to about 1Hz 50% duty cycle. You should see the Attack and Decay LEDs light alternately. Move the Attack, Decay and Release knobs a little bit to the right and you should see the Attack, Decay/Sustain and Release LEDs light in sequence.

If you don't have an oscilloscope – once you've verified that the module is working using the steps above, patch it into your system and adjust CV_LEVEL_TRIM trimpot by ear – you can vary the peak CV between roughly 5-10V. If you have an oscilloscope, check the peak envelope CV level and adjust the CV_LEVEL_TRIM trimpot to suit your system.

BILL OF MATERIALS

Qty	Value PJ-	Parts
2	324MH	CV, GATE
3	RED	A, DS, R
1	100k	S_POT
3	1M	A_POT, D_POT, R_POT
1	30p	C1
2	68p	C19, C20
3	100n	C2, C3, C18
		C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14,
12	100n	C15
1	4017N	IC3
2	1N4007	D4, D5
3	1N914	D1, D2, D3
2		FERRITE1, FERRITE2
1	40106N	IC2
3	14 PIN	
1	16 PIN	
1		JP1
1	TL074P	IC4
1	1u	C21
2	220u	C16, C17
1	22u	C22
1	4066N	IC1
6	100k	R3, R5, R6, R7, R12, R16
4	10k	R2, R8, R9, R10
5	1k	R1, R4, R14, R17, R18
2	47k	R11, R13
1	82k	R15
1		LONG-SHORT
1	100k	CV_LEVEL_TRIM

Description

3.5MM PCB MOUNTED JACK 3MM LED **9MM ALPHA POT** 9MM ALPHA POT CAPACITOR CAPACITOR CAPACITOR, European symbol CAPACITOR, European symbol COUNTER/DIVIDER DIODE DIODE FERRITE BEAD Hex SCHMITT TRIGGER IC SOCKET IC SOCKET JUMPER OP AMP POLARIZED CAPACITOR POLARIZED CAPACITOR POLARIZED CAPACITOR Quad bilateral ANALOG SWITCH RESISTOR RESISTOR RESISTOR RESISTOR RESISTOR SPDT TOGGLE SWITCH 3296W Trimm resistor

PCB LAYOUT



PANEL LAYOUT



Wire the Long / Short delay toggle switch to the SW1 pads on the PCB. The pads are marked R and L – the wire connected to the R pad should connect to the Right side of the switch, etc.

The Attack, Decay, and Release knobs set longer delays the further they are to the right. The sustain level is highest when the Sustain knob is furthest to the right.

When the module is powered on, the Release LED lights continuously. When the module receives Gate signals, the Attack and Decay/Sustain LEDs will light, as the module passes through these states.



+20mA, -35mA



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