



Ancient Scroll Voltage-Controlled Decay Envelope
Assembly Instructions for Eurorack
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Hello and thank you for building the Ancient Scroll DIY kit. We hope you will find its snappy envelopes to be useful and fun!

Bill of Materials:

1x Panel + 2x SMT populated PCB
1x Through Hole LED
1x 10-Pin 2.54mm Power Header (or 2x 5-pin Single Row headers)
2x 5-Pin Header Connector (single row)
2x 5-Pin Socket Connector (single row)
2x M3 6mm Screws
1x 3-Pin Header Connector (single row)
1x Plastic Connector Shunt
1x 11mm M3 spacer
1x Pushbutton + Cap
1x B100k Potentiometer
1x 6.35mm knob
3x Thonkiconn Jacks + Knurled Nuts
1x 10 to 16 Pin Power Ribbon Cable

Technical Specifications:

Width: 10 hp (Intellijel 1U format)
Depth: 35 mm
Peak Current Draw: 25 mA @ +12V, 20mA @ -12V
Time Range: 6 mS - 15 seconds (approx)

Assembly Instructions:

1. Solder the 2x5-pin power connector onto the back of the main PCB (the one without holes for panel hardware). We recommend using the provided power ribbon cable to hold the header in place while you first solder one pin, double check to confirm the header is completely perpendicular to the PCB (as close to perfectly vertical as possible).

Once the header is straight, solder the rest of the header pins, making sure that each pad is making contact with the header but not with adjacent pins.

2. Repeat step 1 for the 1x3-Pin header, which is used to select 0-5V or 0-8V output range. Once this header is soldered, go ahead and place the plastic shunt over the middle pin and whichever outer pin corresponds to your desired output range. (0-8V is standard for use with the Arcane Knowledge VCA and other SetonixSynth modules.)
3. Insert an M3 screw into the Panel PCB so that the threading is on the same side as the surface mount components and the silkscreen circle. Screw the 11mm spacer on finger tight.
4. Prep your pin headers: insert two 1x5 pin headers into two 1x5 pin sockets and press them together.
5. Place the two pin header assemblies from step 4 into the footprints on each side of the Panel PCB. Make sure they match, i.e. both socket sides are placed into the panel PCB and both

header sides are facing upwards.

6. Place the Main PCB on top of the pin headers. Make sure each side neatly slots into the corresponding footprints, and that the mounting hole at the top of the PCB aligns with the 11mm spacer. Once everything is in place, place an M3 screw through the hole matching the spacer and tighten it with a screwdriver so the two PCB's form a sandwich with the pin headers and sockets held in place.
7. Solder the headers and sockets. We recommend soldering one pin on each side before double checking that everything is straight and sitting in place, then soldering the rest of the pins.
8. Unscrew the M3 screw on the main PCB and pull the sandwich apart. The headers should all be soldered and straight, ready to be re-attached later.
9. Remove any nuts that come pre-attached to the hardware, then insert all the front panel components into the Panel PCB: B100k potentiometer, Thonkiconn jacks, Pushbutton, and Red LED. **Make sure the short leg (cathode) of the LED corresponds to the Square pad of its footprint.**
10. Taking care that nothing slips out of place, fit the module's front panel over the hardware. With a little wiggling it should fit on pretty easily. While holding the PCB against the panel, thread the appropriate nuts over the Pushbutton, all three Thonkiconns, and Potentiometer. This helps a lot with keeping the hardware straight.
11. Flip over the PCB/panel sandwich and move the LED around so that it slots into its panel hole. Once it is in place, solder both legs of the LED and clip them.
12. Inspect the PCB/Panel sandwich. The PCB will naturally sit a little closer to the panel on the side with the Thonkiconns and Switch. To counteract this, do your best to gently move the PCB so that it is as close to parallel with the Panel as possible. When the PCB's are parallel, the Thonkiconn jacks should sit slightly off the PCB and the Pushbutton legs should just barely meet the PCB holes.
13. Hold the PCB in place and solder one pin of a Thonkiconn jack. Re-inspect the sandwich from all angles, making sure it is as straight as possible behind the panel. (There is some margin of error, but do your best!)
14. Once you are satisfied, solder the rest of the front panel hardware. Be careful not to miss any pads or short together any legs of the potentiometer. Use a liberal amount of solder on the Pushbutton so that the pads fill with solder.
15. Inspect your work: double check that all through hole pads are properly soldered and not shorted on both the Panel and Main PCB's.
16. Fit the Main PCB's headers into the sockets on the Panel PCB and re-insert an M3 screw into the hole in the Main PCB which matches the 11mm spacer. At this point the module should be fully assembled.

17. Test the module: connect the power ribbon cable with the -12V side facing down to your system and power it on.
 - 17a. Press the Manual pushbutton and observe the Red LED. It should turn on whenever the button is pressed, with the rate of Decay corresponding to the knob position.
 - 17b. If the LED works, send a Gate sequence or Square Wave to the Trig In jack and monitor the Envelope Out jack on an oscilloscope (or simply use this output to modulate a filter or VCA). Adjust the Envelope Decay knob and make sure it changes the Decay, and also patch a CV from an LFO or sequencer into the Decay CV jack to test the Decay CV functionality.
 - 17c. Once you have confirmed all these functions are working, go ahead and power off your system and disconnect the module in preparation for final assembly.

18. Once you have tested your Ancient Scroll module and confirmed it is working, it's time for final assembly. Tighten all the front panel nuts as much as you can and put the knob on the Envelope Decay potentiometer. Now you can rack and enjoy your module!

Thanks for building the Ancient Scroll!