

E340 Cloud Generator DIY Kit

www.synthtech.com/euro/e340

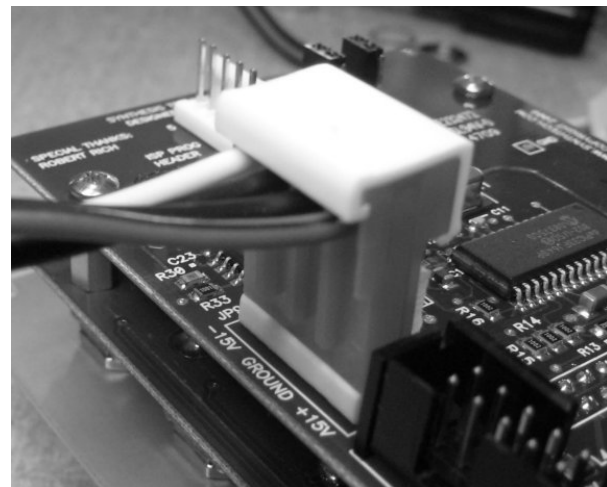


What is the E340?

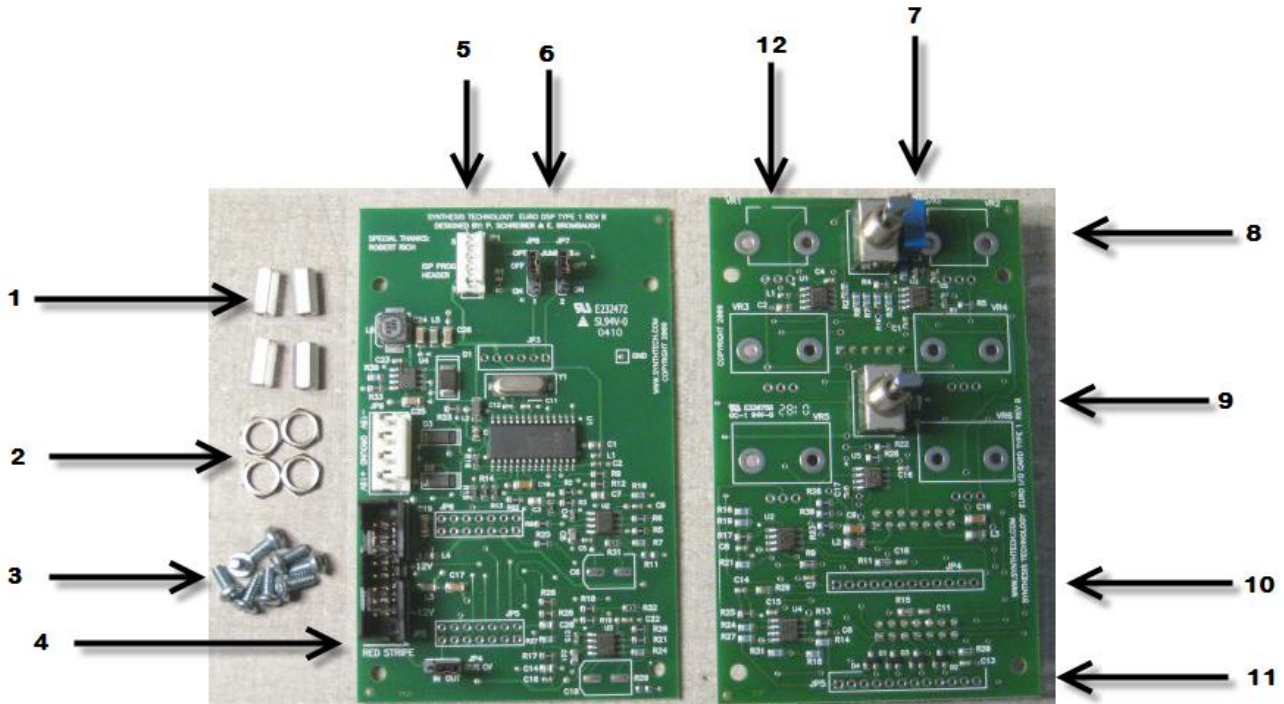
The Synthesis Technology E340 is a dual output VCO that contains 8 oscillators. These oscillators can be detuned by a control voltage (SPREAD) and internally modulated by filtered noise (CHAOS and CHAOS BW). A SYNC input resets all oscillators when the SYNC signal is above 0.25V (also called 'hard sync').

Connecting to the power supply

The E340 can use either a MOTM 4-pin, MTA-156 style connector (+-15V) or a 16-pin Euro style (+-12V) connector. See the photos below. The Euro ribbon cable has a red stripe to indicate -12V. The supplied Euro power cable is keyed so that when inserted in the E340, the red stripe is 'down' (towards the jacks) and by the white lettering on the pc board.



What's in the Kit (Euro Power Cable Included, not Shown)



NOTE: THIS SHOWS A E350 BOARD WITH 2 TOGGLE SWITCHES. THE E340 HAS 1 TOGGLE SWITCH!

- 1- 4ea spacers, threaded for 4-40 screws, length 0.375in
- 2- 2ea hex nuts for the switches (picture shows 4 for the E350 DIY)
- 3- 8ea 4-40 x 0.25in pan head screws
- 4- This is where the Euro power cable goes (see Page 1)
- 5- This is the DSP programming header. **DO NOT CONNECT ANYTHING TO HERE!**
- 6- Option jumpers, these are **NOT USED** on the E340 so leave them alone.
- 7- 1V/OCT trimmer. This trimmer is **NOT ADJUSTED** at the factory!
- 8- This switch is **NOT PRESENT** on the E340.
- 9- The **DENSITY** switch for the # of VCOs used (2, 4, or 8).
- 10 – Jack/wire connections for the first row of jacks
- 11 – Jack/wire connections for the second row of jacks
- 12 – 6ea pot mounting/hole locations

What you will need to supply

6ea 50K or 100K linear pots (either one will work fine) and 8 jacks. These can be banana, 3.5mm or 1/4". For lowest frequency jitter, the 1V/OCT, FM and SYNC jacks should be NC shorting type (Switchcraft 112AX or equivalent). The switched contact is tied to ground on the pc board, so that when no patch cord is inserted, the input is

grounded. If non-shorting jacks are used (like banana) then you may experience small variances in output frequency.

Here is how to connect to the pot & jack board

Step 1

Decide if you want to keep the toggle switch soldered to the front panel (highly recommended) or not.

If you decide that you want to remove it (you can reuse it if you are careful), then use solder wick to remove as much solder as possible, then apply a vacuum 'solder sucker' to remove all the solder. The switches are called ON_OFF_ON types (SPDT) because they have 3 positions. The center position is OFF, meaning the common side is not connected to either switched side.

The switch has 2 mounting nuts. For maximum mounting strength, the 'bottom nut' should be threaded up touching the rear of the front panel before the 'top nut' is tightened.

Also note that when the toggle switch is flipped 'up' (say to select the 8 oscillator output) this means the center pin (COMMON) is connected to the **bottom** switch lug.

If you remove the switches/use your own, use 24ga tinned stranded wire.

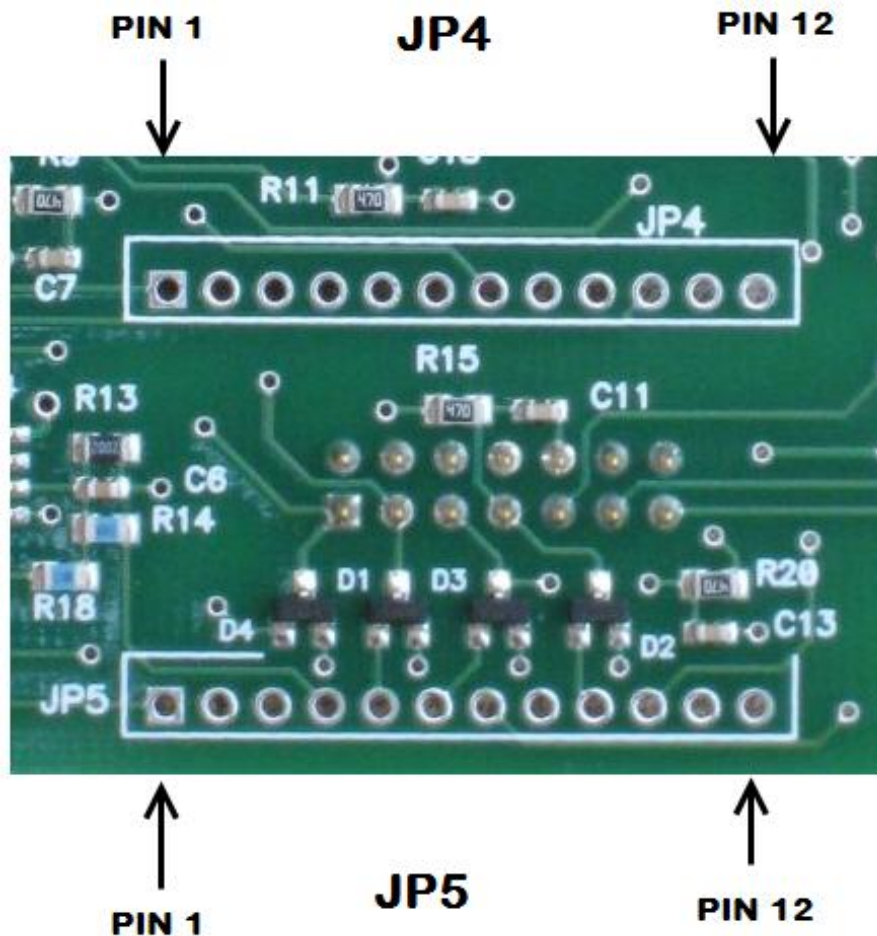
Step 2

Wire up the pots. The wire should be inserted from the front (component) side, not from the back where the 3 connectors are. All 6 pots are wired exactly the same. There are 3 horizontal holes that correspond to the 3 pot lugs when the pot is viewed from the **front** and **NOT FROM THE BACK SIDE**. If you wire the pots up backwards, you will not damage anything but you will quickly figure it out.

So, using 22ga or 24ga stranded wire, wire the left pot lug (when facing the FRONT of the shaft) to the left hole, the center lug to the center hole and the right lug to the right hole.

Step 3

Wire up the 8 jacks. Refer to the photo below:



You will notice that PIN 1 of the jack connectors has a square pad. As before, insert the wire from this side and solder on the back side. The connections to the jacks are as follows:

JP4

- 1 – 1V/OCT input signal
- 2 – 1V/OCT switched lug (optional)
- 3 – Ground lug
- 4 – FM input signal
- 5 – FM switched lug (optional)
- 6 – Ground lug
- 7 – SYNC input signal
- 8 – SYNC switched lug (optional)
- 9 – Ground lug
- 10 – SPREAD input signal
- 11 – do not connect
- 12 - Ground lug

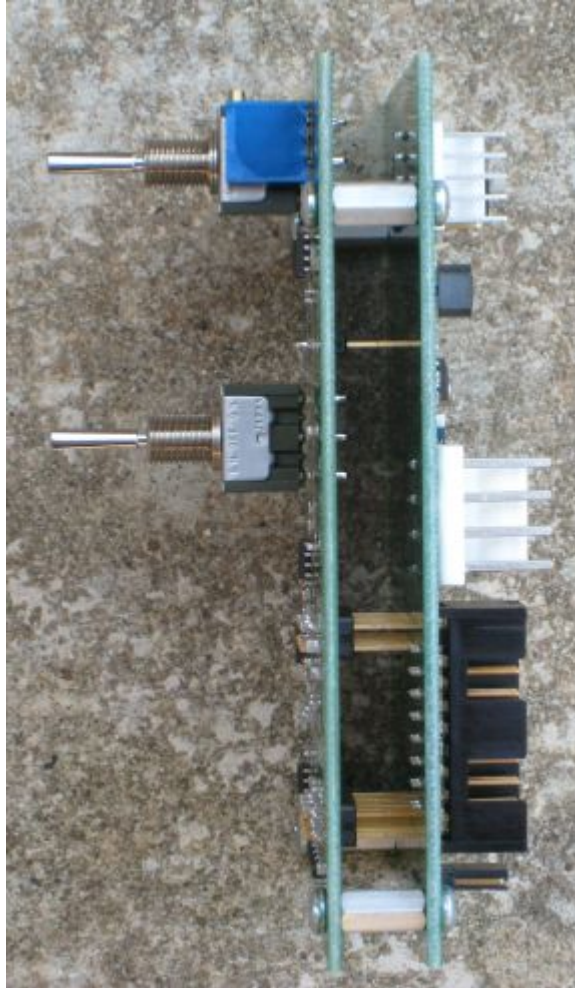
JP5

- 1 – CHAOS input signal
- 2 - do not connect
- 3 – Ground lug
- 4 – CHAOS BW input signal
- 5 - do not connect
- 6 – Ground Lug
- 7 – SAW output signal
- 8 – do not connect
- 9 – Ground lug
- 10 – SINE output signal
- 11 – do not connect
- 12 – Ground lug

Step 4

Attach the DSP board to the front board. You will note there are 3 gold-plated headers that are on the rear of the pot/jack board. These will solder to the top (component) side of the DSP board. See the photo below:

NOT PRESENT >>>



NOTE: SOLDER THE POT WIRES TO THE PC BOARD BEFORE ATTACHING THE 2 BOARDS TOGETHER AS SHOWN.

- a) thread a hex nut on the switch to the switch base
- b) place a screw and threaded standoff on the back side of the pot/jack board in each mounting hole. There are 4 holes, 1 in each corner.
- c) carefully align the DSP board so all the header pins are inserted into the corresponding holes. The 4 corner holes on the DSP card will align with the other ends of the standoffs. Use the 4 remaining screws to screw the 2 boards "back-to-back" as shown. Very carefully solder each of the header pins to the top side of the DSP card. The header pins are custom-made so that there is no need to cut excess after soldering.

Step 5

There are 3 jumper options on the DSP board as follows:

JP4 – buss CV. This is for Doepfer-style bussboards. The default position is OUT (the buss CV is not connected to the 1V/OCT summer). Placing the jumper to the IN position will cause the buss CV to be added to the overall frequency summer.

JP6 – JP7 : this are NOT USED.

Step 6

All that is left to do is mount the board assembly and the wiring/pots/jacks/switches to a panel. If you keep the switch on the pc board, remember to “thread up” the bottom nuts to lay against the back of the panel for mechanical support when you place the front nuts on and tighten.

The module does NOT come calibrated to 1V/OCT tracking. There is a 25-turn trimmer that will be roughly in the middle range (about 12 turns of the screw adjust from one end) when calibrated. This is a good place to start.

If you have any questions or issues please email me at: synth1@airmail.net