

E560 Deflector Shield DIY Kit

www.synthtech.com/euro/e560



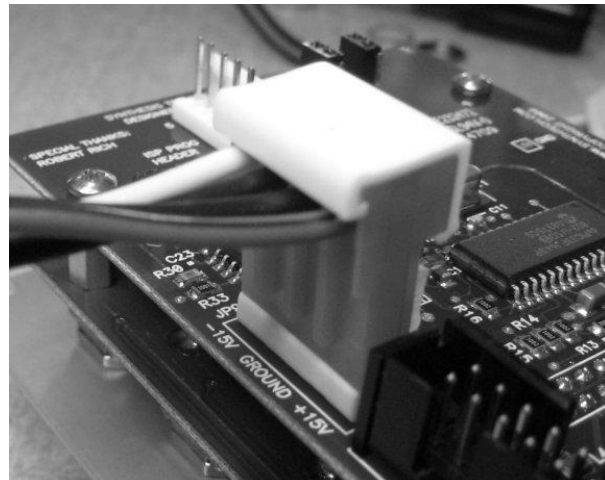
What is the E560?

The Synthesis Technology E560 is a combination frequency shifter, phaser and ring modulator. The audio is mono in, and stereo out. This is an audio-only module (not suited for DC input voltages). For best performance, the audio input should not exceed 5V pk-pk. If you use full-scale VCO signals into the E560, use an attenuator first, otherwise you may clip at certain feedback settings. Typical VCOs output 10V pk-pk.

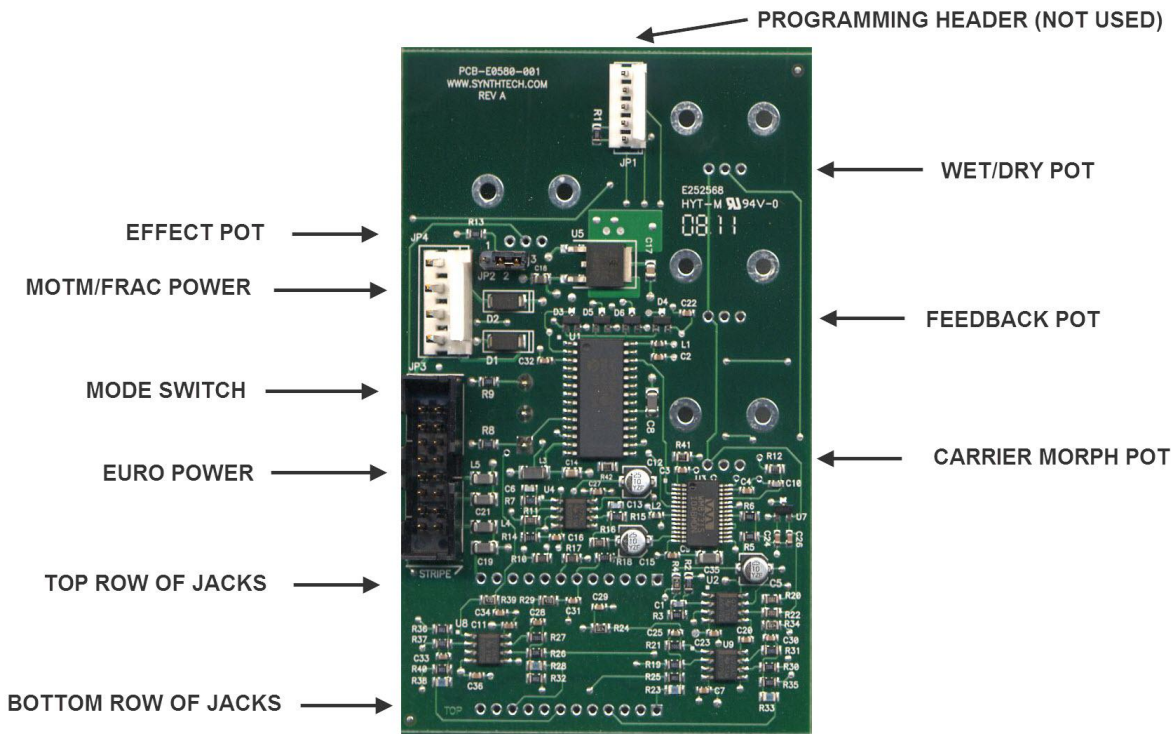
There are 4 control voltages (summed with the corresponding 4 panel controls) that allow real-time manipulation of the audio. In many cases, a very slow LFO is used to drive a CV input, but you can use envelope generators, output from a S&H, a sequencer or any other signal. Since the E560 does not have built-in attenuators, you normally first attenuate a CV before plugging it into the E560. If you want to use a full-scale, -5V to +5V signal, the panel knob must be set straight up ('12:00 position') or the internal voltage clamps will limit the swing.

Connecting to the power supply

The E560 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 E560, the red stripe is 'down' (towards the jacks) and by the white lettering on the pc board.



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



E560 DEFLECTOR SHIELD PC BOARD - REAR VIEW

What you will need to supply

4ea 50K or 100K linear pots (either one will work fine) and 7 jacks. These can be banana, 3.5mm or 1/4". The MODE switch is pre-soldered, but you can remove/replace it if you are careful. The holes on the pc board are in a pattern for vertical pots from BI, part number P260T-D1BS3CB100K (see www.mouser.com). However, most people will solder 3 wires into the 3 pot holes and ignore the 2 large mounting holes.

Here is how to connect to the pc 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

PAGE 3

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 SHIFT mode) 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

For these instructions, please note that the way this pc board is setup, that the "component side" with all the soldered parts faces **away** from the front panel. The switch is facing **towards** the front panel.

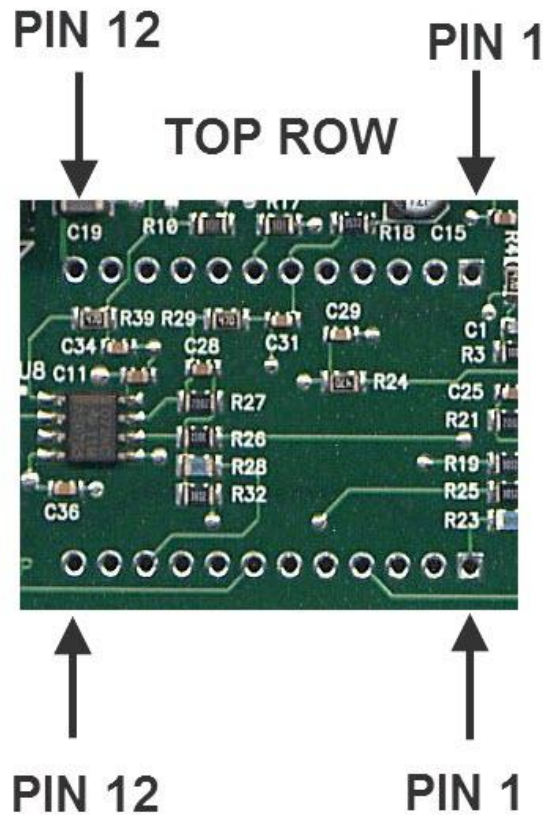
When you solder to the pc board, the wires from the front panel are inserted from the "switch side" and solder is applied to the "component" or rear side.

Wire up the pots. The wire should be inserted from the front (switch) side, not from the back. All 4 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 7 jacks. Refer to the photo below:



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

TOP ROW

- 1 – AUDIO input signal**
- 2 – do not connect**
- 3 – Ground lug**
- 4 – AUDIO DOWN output**
- 5 – do not connect**
- 6 – Ground lug**
- 7 – AUDIO UP signal**
- 8 – do not connect**
- 9 – Ground lug**
- 10 – do not connect**
- 11 – do not connect**
- 12 – do not connect**

BOTTOM ROW

- 1 – EFFECT input signal**
- 2 - do not connect**
- 3 – Ground lug**
- 4 – MIX input signal**
- 5 - do not connect**
- 6 – Ground Lug**
- 7 – FEEDBACK input signal**
- 8 – do not connect**
- 9 – Ground lug**
- 10 – MORPH MOD input signal**
- 11 – do not connect**
- 12 – Ground lug**

General Info

CV Inputs: -5V to +5V, DC to 8KHz.

Audio input: 10V pk-pk maximum (@ zero feedback only), 5Hz minimum frequency.

Audio Outputs: -5V to +5V, 5Hz to 18KHz

Power: +12/+15V @ 90ma, -12/-15@20ma.

Jumper option (JP2): default is 1-2 position (normal). When jumper is in the 2-3 position (quadrature oscillator) and the MODE switch is in PHASE, the carrier wave will appear at the AUDIO DOWN/UP jacks (90 deg out of phase with each other, in quadrature). Note that due to AC coupling in the audio DAC filters, this waveform will only be full-scale at frequencies > 5Hz.

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