

## **SWEnigiser VCF/A manual & calibration**

### **Background**

The filter is built on 4x 6db cells in series with selectable inputs (A,BC) and outputs (1-4).

#### **FILTER IN A**

- 1 LP 1
- 2 LP 2
- 3 LP 3
- 4 LP 4

#### **FILTER IN B**

- 1 Notch 1 pole
- 2 LP 2 pole
- 3 LP 3 pole
- 4 LP 4 pole

#### **FILTER IN C**

- 1 HP 1
- 2 BP 1
- 3 BP 2
- 4 BP 3

Short about the filter modes. Connoisseurs of the original might notice that the phaser modes (5) are missing. We choose to omit it because it is simply the same as mode 4 mixed with the dry signal, and we would have needed to do a completely different hardware solution to provide it. You can easily make the same sound by using an external mixer module.

The CLIP switch in up position clips the signal going into the VCA using two diodes, capping at 4V, we have added an extra gain stage to raise the output volume to this stage. The diode clipping adds asymmetric clipping with a great character. When the CLIP switch is on down position the clipping is turned off and the input/output is cleaner.

PING the filter by setting resonance close to self resonating and inserting short audio pulses or a very low frequency signal.

### **Specifications**

#### **VCF**

Unique configuration with 3x4 filter modes

Self resonating, from sine to square depending on clip mode.

2x audio input with drive

2x cutoff CV attenuator inputs  
1x cutoff CV input, tunable to 1v/oct

VCF output normalized to VCA input.

### **VCA**

1x audio input with drive, normalized from VCF output  
2x CV input. CV1 knob adds offset for drone etc.  
CLIP switch for old/new revision Enigiser diode setting adjusting drive character.

+12V 22mA  
-12V 22mA  
12 hp, depth 22 mm - Skiff friendly  
Includes power cable, 4 screws+nylon washers

Available in sand blasted silver or powder coated black panel versions.  
2mm aluminium panel

Box dimensions 83x163x52 mm, weight 210 gr

### **Calibration procedures and adjustments**

***General warning - use gentle force when turning the calibration potentiometers.  
Breaking a trimmer potentiometer is not covered by the warranty.***

#### **1V/octave scaling**

The filter is not delivered calibrated to 1V/oct, so if you want to use it as a VCO you need to perform the calibration below.

Counter clockwise increases scaling, clockwise decreases scaling. Set resonance to max for self oscillation. Insert keyboard CV to CV3 input.

1. Play a C and adjust frequency to 523 Hz using the front panel cutoff knob.
2. Play the C an octave above and adjust frequency to 1046 Hz using the v/oct trimmer.
3. Repeat from one until both C:s are as close to 523 and 1046Hz as possible

You can also select any arbitrary note or frequency, as long as you check using octaves (double and triple are also fine, or even better.)

Method 2:

Adjust by ear until you hear an octave.

The filter is not temperature compensated, so you can expect pitch variation if you have varying temperature conditions.

### **DRIVE**

Turn CW to increase drive amount or CCW to decrease. Default is in the middle.

### **VCA**

Set Cutoff knob to 12 o'clock (up)

Set RESONANCE knob to max (this will generate a self oscillating tone from the filter)

All other knobs set to 12 o'clock (up)

Set VCA In to max

set VCA CV+OFFSET to min

Set CLIP button in "down" position.

Measure output from VCA OUT (black background) using oscilloscope set to AC, 0.1V Y-division, 5ms X-division. You can also use a multimeter set to AC.

Adjust "VCA CENTRE" trimpot to 0V (no signal).

Set Oscilloscope to 2V Y-division. Turn VCA CV+OFFSET knob to ensure smooth rising signal from 0V to 10Vpp and back to 0V.

### **Simple procedure:**

Calibration can also be done by simply listening to the output. Set VCA CV+OFFSET to min, adjust VCA CENTRE trimpot until the sound is gone. Go back and forth a few times to ensure you have the right balance.

### **RESONANCE**

Turn CW to increase drive amount or CCW to decrease.