

3340 Analog VCO



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Description

The Electrosmith 3340 VCO is an all analog, voltage controlled waveform generator that uses a reissue of the legendary Curtis CEM3340 IC. Many believe this chip to be the greatest sounding analog oscillator of all time. Simultaneous outputs of sine, triangle, sawtooth, and square waves are available along with linear/exponential FM, hard/soft sync, and PWM capabilities. Volt per octave tracking covers a huge 10+ octaves and is extremely stable across all temperatures. Snag a piece of history with the Electrosmith 3340 VCO.

- CEM3340 based architecture
- Analog waveform generator
- 10+ octave range with accurate 1V/Oct tracking throughout
- Linear and exponential FM
- Hard and soft sync
- PWM control

Check out a list of famous synths that use the 3340 IC here:
https://en.wikipedia.org/wiki/CEM_and_SSM_chips_in_synthesizers

Installation

To install, locate 6 HP of space in your Eurorack case and confirm the positive 12 volts and negative 12 volts sides of the power distribution lines. Plug the connector into the power distribution board of your case, keeping in mind that the red band corresponds to negative 12 volts. In most systems, the negative 12 volt supply line is at the bottom. The power cable should be connected to the module with the red band facing the front of the module.

Specifications

- Size: 6 HP
- Depth 31 mm
- Current Consumption:
 - +12V: 38mA
 - -12V: 28mA

Diagram



Functional Overview

1. Coarse Frequency Knob

Controls the frequency of the output waveforms. Offers a wide frequency range: 3.45 Hz to 34.5kHz.

2. Fine Frequency Knob

Controls the frequency of the output waveforms. Offers a smaller frequency range: 7 semitones up or down from center.

3. V/Oct

Volt per octave control voltage input.

Input range: -7.5V to +12V.

V/Oct trimpots on submodule allows for tuning and fine adjustments.

4. Linear FM Knob

Acts as an attenuator for incoming CV at the Linear FM input.

5. Linear FM

Control voltage input for linear frequency modulation of waveforms.

Input range: -10V to +10V.

6. Exponential FM Knob

Acts as an attenuator for incoming CV at the Exponential FM input.

7. Exponential FM

Control voltage input for exponential frequency modulation of waveforms.

Input range: -10V to +10V.

8. PWM Knob

Controls the duty cycle of the square wave.

Allows for duty cycle control between 15% and 90%.

9. PWM

Control voltage input for the duty cycle of the square wave.

Input range: -12V to +12V.

Allows for duty cycle control between 1% and 98%.

10. Sync Toggle

Allows for selection between soft or hard sync.

11. Sync

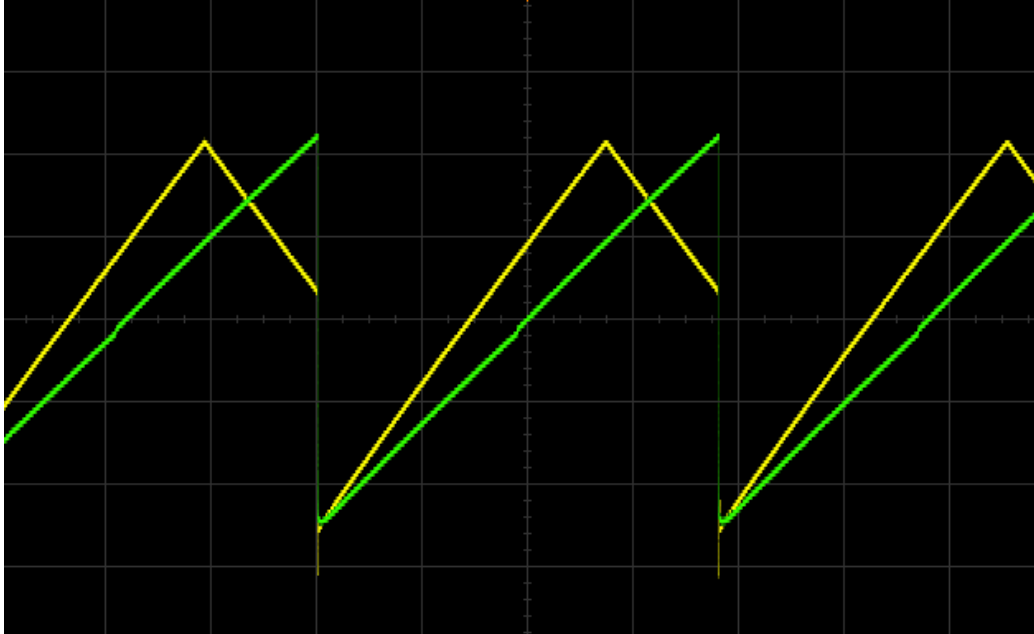
Trigger input for frequency synchronization of output waveform.

Hard sync triggers on a falling edge of at least 3V (unipolar or bipolar) and causes output waveform phase to reset to 0°.

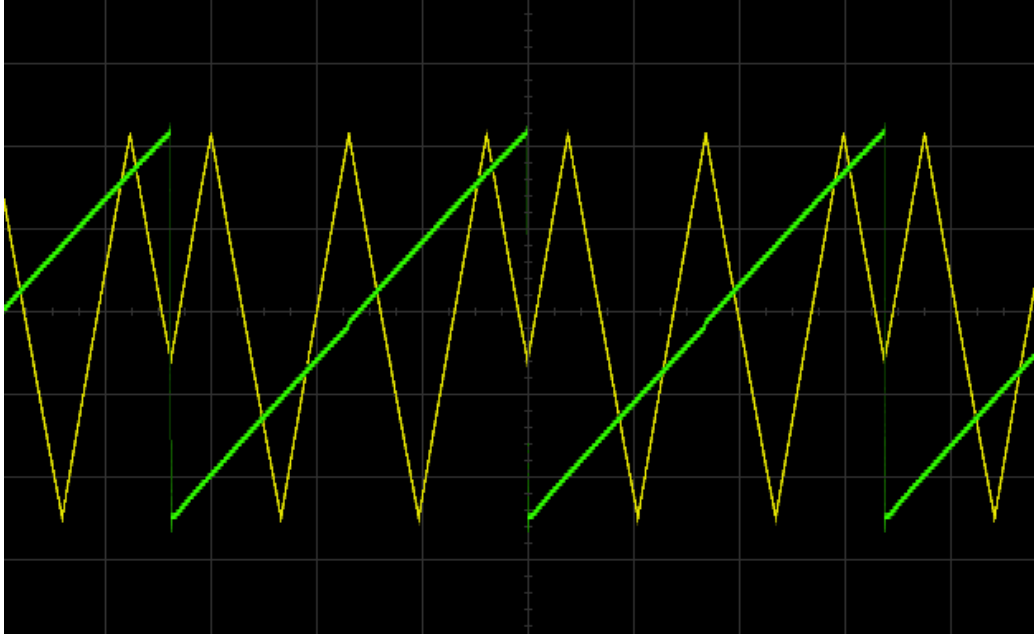
Soft sync input triggers on both rising or falling edges of at least 0.6V. Soft sync does not cause complete phase reset to 0°, but rather phase reversal.

On either edge of a soft sync input trigger, the output waveform will mirror itself in time with respect to the trigger edge.

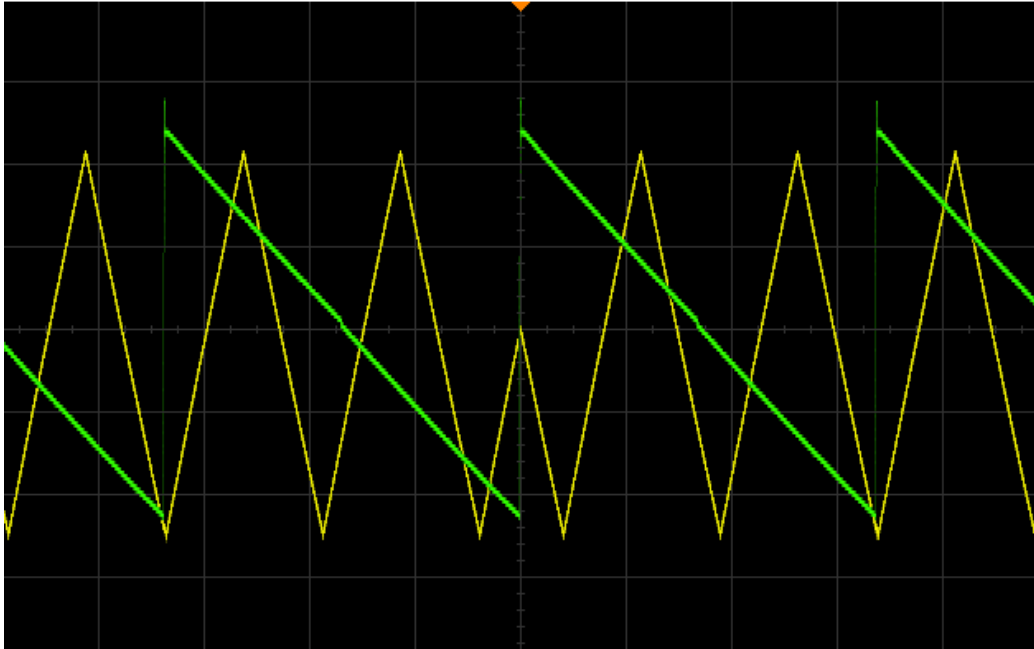
Example Hard Sync



Example Falling Edge Soft Sync



Example Rising Edge Soft Sync



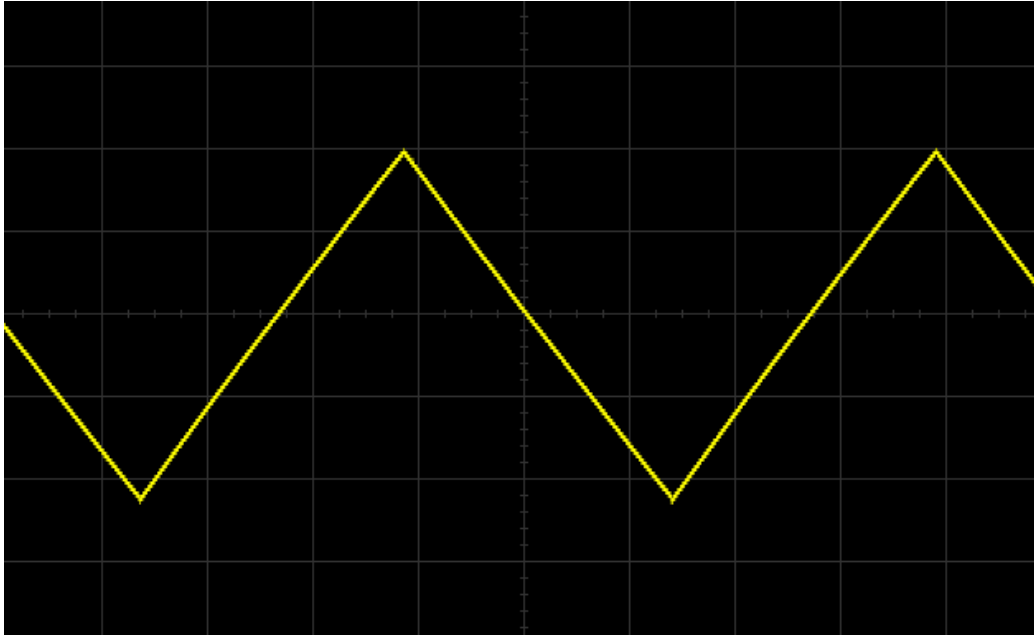
12. Sine Wave Output

Output for sine wave. Waveform is bipolar with 11V_{pp} amplitude.



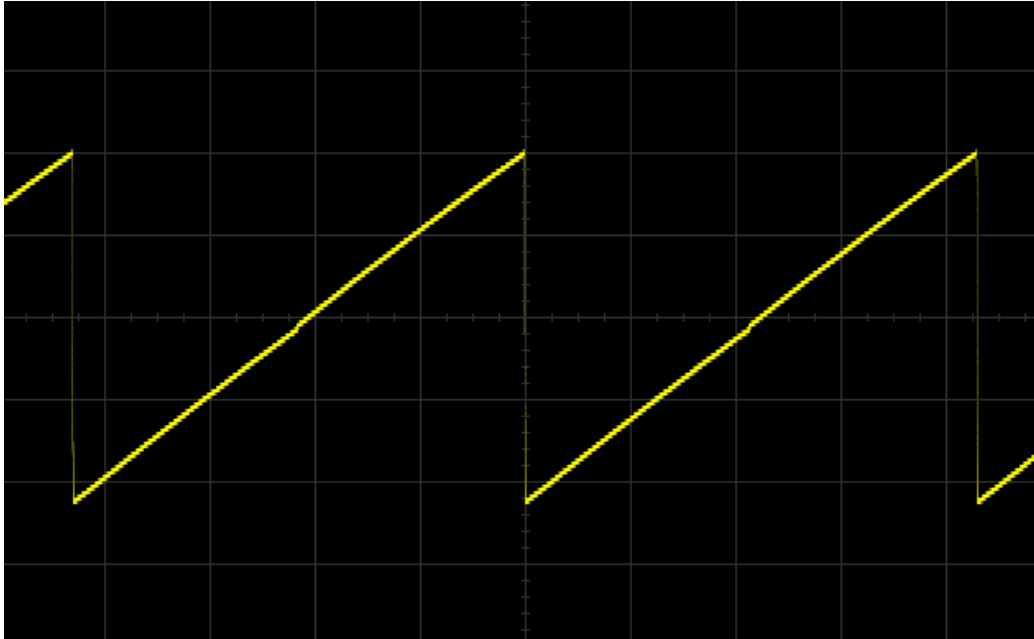
13. Triangle Wave Output

Output for triangle wave. Waveform is bipolar with 10Vpp amplitude.



14. Sawtooth Wave Output

Output for sawtooth wave. Waveform is bipolar with 10Vpp amplitude.



15. Square Wave Output.

Output for square wave. Waveform is bipolar with 11Vpp amplitude.

