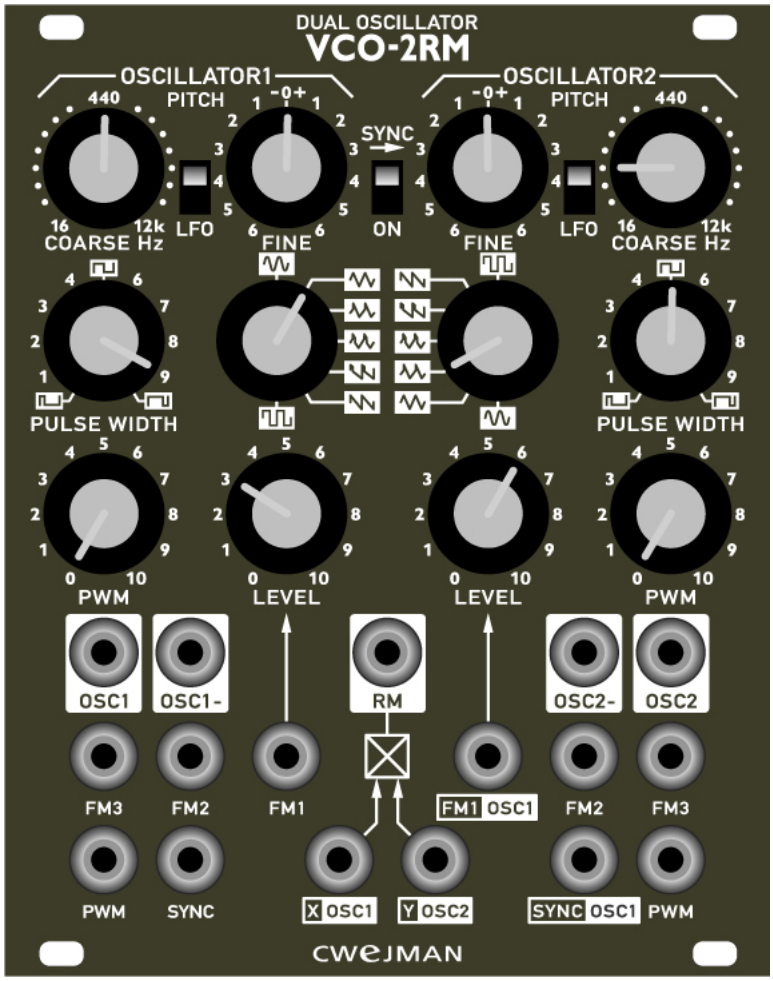
VCO-2RM, dual oscillator with build-in ring modulator

The Oscillators are the main sound sources of the instrument. VC0-2RM is equipped with seven waveforms, LFO mode, sync and waveform outputs are routed to a DC coupled ring modulator (RM).



The oscillator's frequency is controlled by COARSE, TUNE knobs and FM inputs.
TUNE finetunes the oscillators (± 6 semitones).

Frequency modulation (leveled FM1, FM2 and FM3) determinates the intensity of frequency modulation and/or pitch control. All FM inputs are carefully calibrated for 1Volt/octave sensitivity.
Frequency modulation, by an audio signal, creates so called "side-bands" that consist of sum and difference of signals frequencies.
These additional frequencies do mostly have a non harmonic sound. Modulation, by low periodic waveforms, such as LFO or envelope generator creates momentary pitch shift of modulated oscillator common named vibrato (by LFO) or pitch bend (by envelope generator).

SYNC means that sync'ed oscillators frequency is tracked by the frequency of controlling oscillator; OSC2's frequency is syncronized to OSC1's frequency. When the tuned frequency of sync-ed oscillator has the same or multiple of frequency of controlling oscillator then sync-ed oscillators waveform has no or very little "glitch" which results in a sync-ed smooth waveform (sinus waveform).
The sync-ed waveforms (with additional FM modulation) are perfect for cutting edge lead sound and hard, funky basses.
PULSE WIDTH % adjusts the pulse width of the pulse wave from 5% to 95%.
WAVEFORM selects the waveform or a mix of waveforms from an oscillator. PULSE WIDTH control works also on the waveform mixes where the pulse wave is included.
Ring modulator (RM) is a classic audio effect device and due to the non harmonic character of the output signal, very useful to create metallic timbres such as bells, sweeping whistles and percussive sounds and tremolo effects (modulated by low periodic signal like a LFO). Two input signals are pre-patched to OSC 1 and OSC 2 outputs. Using the inputs X and Y, any other external signal can be routed directly into the ring modulator. As modulation source the ring modulator can produce a huge amount of complex waveforms both in the low and audio frequency range.

Performances	
Total frequency range	0.01Hz to 22kHz, including LFO mode
Controls	
COARSE	16 Hz to 12 kHz, 0.01 Hz to 16 Hz in LFO mode
TUNE	12 semitones
WAFEFORMS	7 basic wafeforms, normal (OSC1, OSC2) and inverted (OSC1-, OSC2-)
PULSE WIDTH	5% to 95%
FM1	leveled, 0 to 1Volt/octave
FM2, FM3	unleveled, 1Volt/octave
PWM	leveled, 0 to 10%/Volt
Inputs	
FM1-3, OSC1	frequency modulation
FM1, OSC2	frequency modulation, pre-patched to OSC1's output
PWM	pulse width modulation
SYNC, OSC1	sync in, any shape of incomming signal, treshold=2Volts
SYNC, OSC2	sync in, any shape of incomming signal, treshold=2Volts. Pre-patched to OSC1
Ring Modulator	dc coupled, gain =1 for X and Y signals, 5Volts
Input X	pre-patched to OSC1's output
Input Y	pre-patched to OSC2's output
Power connector	16 pins header with connction to the internal CV bus and selectable by a dip-switch on the back for both oscillators and pre-patched to the FM3 inputs.
Current consumption	75mA
Protection	protected against reversal voltage
Dimensions	28.4mm (H), 101mm (B), 3 HE, 20 TE