

The VCS3 Card for 208

Hi

Thank you very much and congrats on your purchase of the VCS3 Card.

This card expands the Music Easel or 208 with original EMS VCS3 circuits : an **oscillator** that produces simultaneous square and triangle waveshapes with wide range from very slow LFO to ultrasonic and features useful modifications (synchronization, shape CV, hi/lo range) and a **noise generator** with variable colour, together with the acclaimed Portabellabz **random voltage generator** modification module that expands many original EMS Synthi A, AKS and VCS3.

The inputs and outputs voltages are adapted to match the ones used in the 208.

Oscillator

hi/lo switch : selects the oscillator frequency range

key switch : sends CV patched to the 208's keyboard voltage input, typically from a 218 keyboard, tracking is calibrated to the user's preference and is good on about 5 octave with minimal drift. The oscillator needs about 10 minutes to warm up and stabilize. Calibration was done with the frequency pot in central position (C), other setting might affect the tracking range.

frequency top pot : sets the oscillator frequency.

frequency bottom pot : sends CV patched to the card's "freq" black banana socket, it's an attenuverter, 0 is the central position, CW is normal CV, CCW is inverted CV.

fine pot : fine tunes the oscillator frequency.

shape top pot : sets the oscillator waveshapes, affects both square and triangle together, in central position, the waveforms are symetrical, fully CW or CCW mutes the square, this is normal behaviour.

shape bottom pot : sends CV patched to the card's "shape" black banana socket, it's an attenuator, CCW is 0, CW is maximum.

square and triangle level pots : waveform level sent to the mixer.

sync pots : sends signal patched to the card's "sync" black banana socket to slave the card's oscillator, it's an attenuator, CCW is 0, CW is maximum. This oscillator's sync is far more tonally versatile than any other analogue synthesizer commercially available. Typical master is the 208's MO via its "mod CV out" socket, the envelope and pulser in fast self mode work as well, the CO is a great master, a dedicated pre-LPG output is possible thanks to a small modification of the 208 detailed in the VCS3 Card build notes available on my website.

Noise and random voltage generators

colour pot : sets the noise colour, CCW promotes low frequencies, CW high frequencies, the pot setting affects the random voltage output.

level pot : noise level sent to the mixer.

noise / random mini slide switch : behind the panel, next to the white banana socket, selects between noise (top) and random voltage (bottom) at the white banana, this affects this output only and the noise is still available in the mixer when switched to random.

208's inverter "to prog" or "to card" socket : random voltage generator clock input
The noise generator needs about 30 seconds to start working, no sound or random voltage immediately after power up is normal behaviour.

square and triangle blue bananas : full range modulation outputs of the oscillator.

white banana : modulation output of the noise and random voltage generators.

red banana : modulation output of the mixer.

tinijax : audio output of the mixer, to be patched into the 208's preamp "signal in" tinijax.

black bananas : CV inputs to the oscillator, as described above.

Internal presets

These presets were carefully adjusted for best performance.

Except the panel "key in" if your keyboard doesn't output an accurate 1V/octave, 1,2V/octave or 2V/octave, none of these presets should be modified.

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audio out : sets the master level of the tinijax output, adjust it with the mixer pots fully CW to have the same amplitude as the MO square when the gain switch is in its central position, comparison can be done with the routing switch. If there's distortion or the gain switch doesn't seem to change level, reduce the master level.

noise : sets the noise output, adjust it to have the wider range and maximum level without distortion or leakage.

tracking : sets the oscillator tracking.

frequency : sets the oscillator frequency.

key in : next to the key switch, trims the keyboard CV, like the 208's "(trim)".

shape (optional) : adjust the oscillator waveshapes

shape lo (optional) : adjusts the oscillator waveshapes in lo range

Recommendations and disclaimer

Ensure that the Easel or 208 is powered off before inserting or removing the card into the program card slot. Do not insert it backwards.

The card warms up in the bottom left and top right corners, this is normal behaviour.

To reduce action and pressure on the 208's edge connector, hold the card with a hand when you patch or unpatch a cable, this connector is solid but not as strong as a module screwed on a boat and you don't want to damage it.

Although 100% safe with any 208, the 218e and any other 200e modules could be damaged if you send an audio signal or a negative CV to a CV or pulse input banana.

The VCS3 Card outputs negative CV and audio signal, therefore do not patch its outputs to a 200e module.

A schottky diode added in series with the 218e or other 200e module's input bananas is a straightforward way to DIY protection from accidental negative CV / audio patching.

In early BEMI Music Easels the weak internal PSU may not power properly another expansion card together with the VCS3 Card via the rear edge connector, a passive 208 Hub or a card doubler. For example on some units the envelope looper of the 208 ToolBox doesn't work if the VCS3 Card is plugged together with the ToolBox although both cards are perfectly working on their own.

A powered 208 Hub is the easiest solution to connect several cards at the same time without extra load on the Easel's PSU.

I assume no liability for personal injury or damage to equipment or loss of use caused directly or indirectly by the use of the VCS3 Card. Feel free to contact me for questions, feedback and support.

The VCS3 Card is manufactured under EMS Cornwall Licence.

Thank you and have fun !

Cheers and beers from Belgium,
Constantin

OVERVIEW

The Portabellabz Synthi Card expands the Buchla Easel's functionality by providing an oscillator based on EMS Synti circuitry. The card provides 5-octave tracking triangle and square waves plus selectable noise color, fed into a mono output mixer. The card is complemented with random voltage generation and modulation outputs for the oscillator waves and mixer in a compact package.

KEY SWITCH input is typically taken from a 218 keyboard, tracking is calibrated to the user's preference and is good on about 5 octaves with minimal drift. The oscillator requires about 10 minutes to warm up and stabilize. Calibration was done with the frequency pot in central position (C), other settings might affect the tracking range.

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