

SYNTH HACKS #08 BUST MY BUTTONS!

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There's a classic scene in *The Wizard of Oz* where Dorothy reveals her magical gift to the gatekeeper who'd been blocking her way. The grumpy guard exclaims, "Well, bust my buttons!" and throws open the door to the Emerald City. I got a similar thrill when I learned how to unlock performance effects with MIDI buttons. Here's how it works.

Typically, we think of MIDI Control Change commands [CCs] as continuous controllers: Twist a knob or wiggle a wheel and your keyboard sends a stream of values from 0 to 127. That's useful for sweeping a filter or dialing in some reverb, but it's hard to send precise values. By their nature, knobs and wheels are gestural. Assigning CC values to buttons instead lets you



Fig. 1

In external control mode, my Korg Kaossilator Pro sends MIDI notes, clock, and Control Changes [CCs] to the Korg NTS-1. The NTS-1 then adds tempo-synced echoes to the SwineWAV sample player [see *Waveform #7*].

home in on sweet spots in the sound. Pressing the button sends one CC value; releasing it sends another.

I discovered the benefits of this when I configured my Korg Kaossilator Pro to control my NTS-1 synth/effects processor [see Figures 1 and 2]. I set the Kaossilator's eight numbered buttons to send specific values of CC119, which controls the number of steps in the NTS-1's arpeggiator. Now, pressing button 1 crops the pattern to one step, button 2 plays two steps, etc. That's way easier than holding the NTS-1's Arp button and tweezing its tiny knob. It's so fast that I can perform rhythmic variations live. [The CC values are 0, 6, 11, 16, 22, 27, 32, and 38.]

I then set the Kaossilator's ABCD buttons to send specific CC values to the NTS-1's delay effect for instant rhythmic echoes—8th, dotted 8th, quarter, and whole note. The NTS-1's built-in delays don't sync to MIDI clock, so I installed the NTS1_BPM_stereo plugin from HammondEggsMusic [https://github.com/hammondeggs]. It offers about a dozen rhythmic divisions you can dial in with CC30; the four above have the values 55, 74,

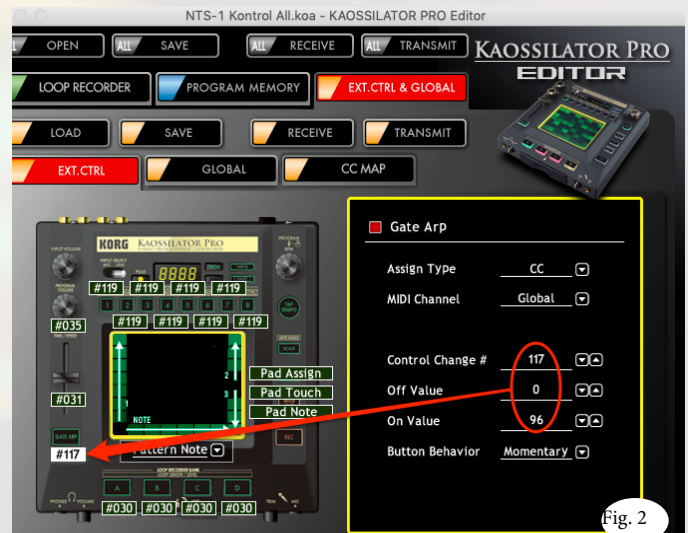


Fig. 2

The Kaossilator Pro editor lets you assign CC values to 13 of its buttons. Here I set the Gate Arp button to switch the NTS-1's arpeggiator to random mode [CC117 = 96] when pressed and up mode [CC117 = 0] when released.

83, and 127. Settings like these aren't always listed in manuals; I derived them through experimentation with the MidiPipe app [www.subtlesoft.square7.net].

MIDI buttons also helped me coax new performance effects out of my Ploytec PL2 microsynth. With the PL02.56 firmware [www.ploytec.com/pl2], the PL2 becomes a low-res speech synthesizer. MIDI notes control the pitch while CC1 [typically assigned to the mod wheel] controls the vocal sound. With 64 different sounds, picking specific ones with a mod wheel is impossible—particularly if you're trying to construct words on the fly—so I loaded some alternative firmware into my Novation Launchpad Pro that lets me map CCs to pads [Fig. 3]. Then I set the top 32 pads to call up specific sounds via CC1 values while the lower pads trigger notes.

If your MIDI controller has a programmable footswitch input, you may be able to send CCs with your feet. Try transposing a second oscillator up a fifth for instant harmony, or punch up the reverb depth or delay repeats to emphasize the end of a phrase. Now, *that's* a horse of a different color.



Fig. 3

Using Dominik Matijaca's custom firmware [https://mat1jaczyyy.com/cfw], I set the Novation Launchpad Pro buttons to call up specific syllables on the Ploytec PL2 speech synth with CC1.