

nootropic  
design



# Synthino

programmable digital synthesizer



- 12-bit DAC for true waveform synthesis -- not PWM like those other microcontroller synthesizers!
- Programmable with Arduino IDE and C code
- 4-note polyphonic or it can be a high-quality monosynth
- ADSR envelope control (attack, decay, sustain, release)
- Low frequency oscillator (LFO)
- Endless possibilities for microcontroller-based audio synthesis!

- MIDI input - connect your favorite MIDI controller
- 1/4" audio jack output
- Power with 9V battery or 9V center-positive adapter with 2.1mm plug (not both at the same time, please)
- Volume thumbwheel on right side (clockwise to increase)



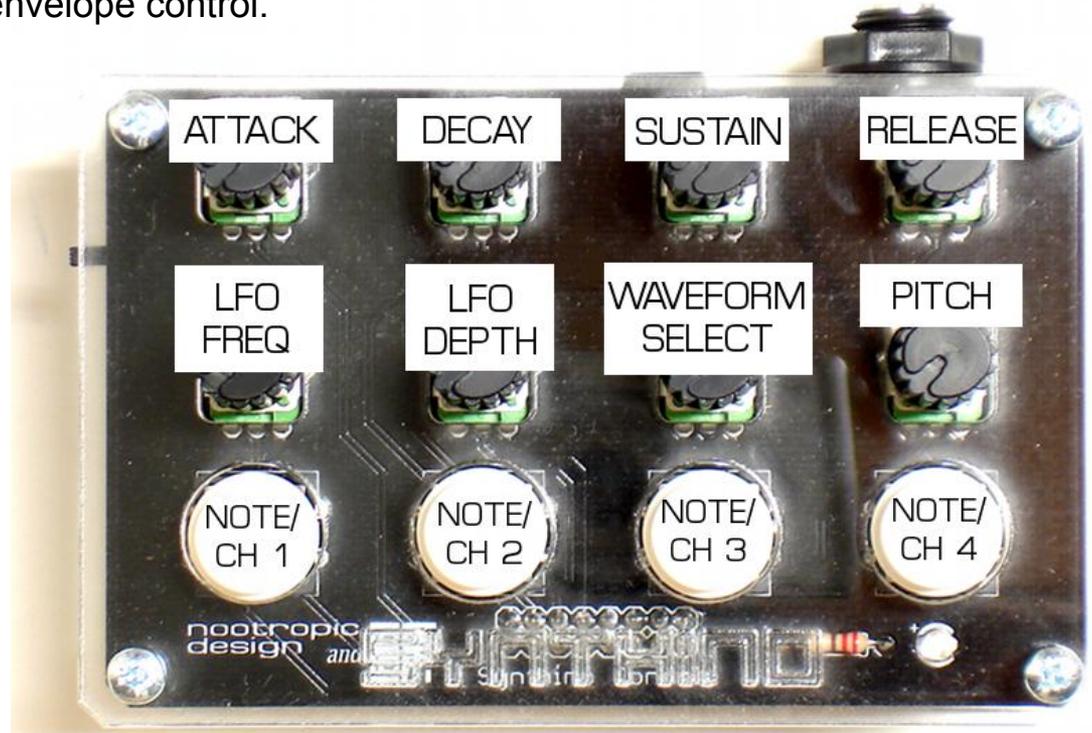
# Synthino Mode 1

Synthino has 3 modes, and mode 1 is default. Use the controls to effect the notes played on the attached MIDI keyboard. The top row of knobs is envelope control.

The low frequency oscillator (LFO) has FREQ and DEPTH control.

Use the WAVEFORM SELECT knob to change the waveform or instrument played. This program has 13 waveforms: sine, triangle, saw, square, saw2, saw3, piano, electric piano, electric organ, cello, sax, oboe, and electric bass.

You can also use the buttons to play notes and set parameters for MIDI channels. Hold a button and use the PITCH knob to select the pitch for that button.



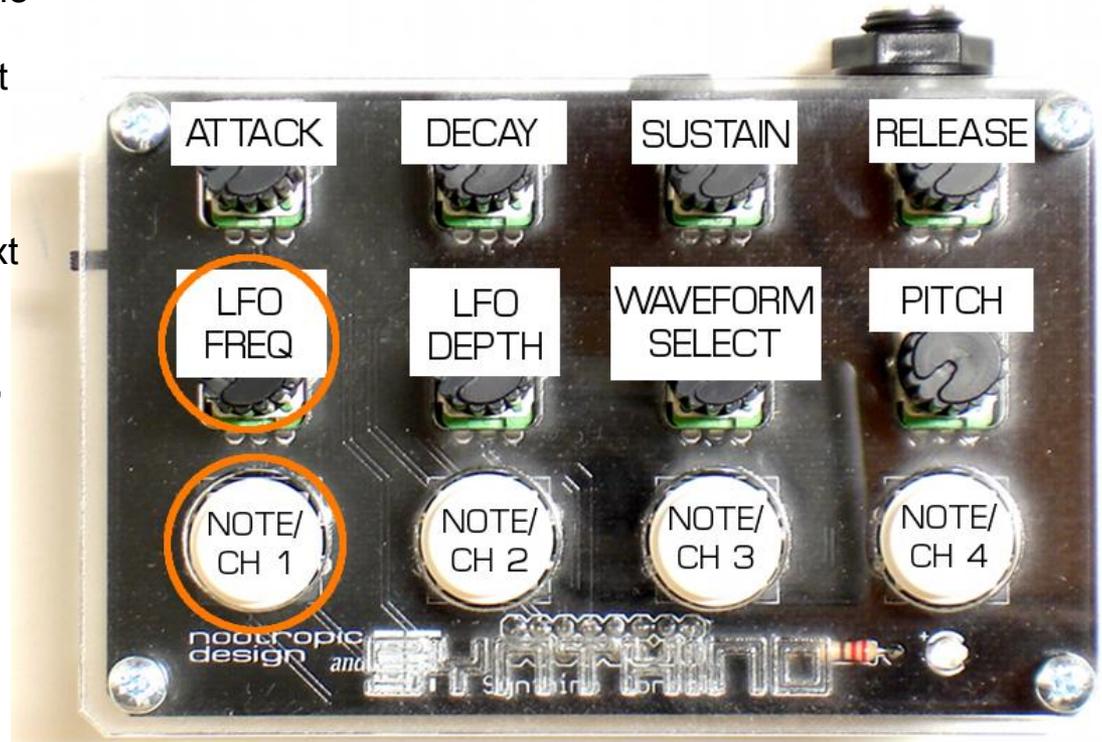
Use the WAVEFORM SELECT and envelope control knobs to change the parameters for that button. Each button can have its own waveform and envelope parameters.

The buttons also correspond to MIDI channels 1-4. The WAVEFORM and envelope control knobs will change the parameters for the channel of the last button pressed. e.g. if the last button pressed was #2, then the WAVEFORM and envelope control knobs changes the parameters for MIDI channel 2.

# Synthino Mode 2

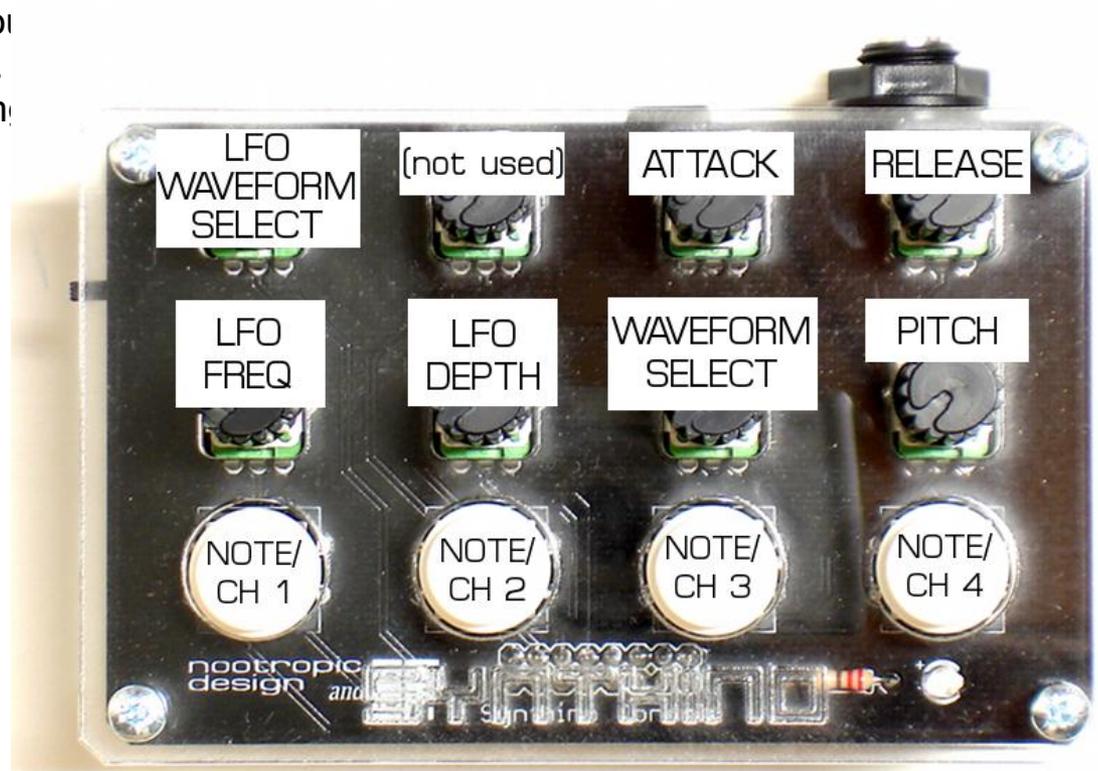
To change modes hold down button 1 while powering on the device. You will hear a number of beeps that indicates the current mode. While holding the button, turn the lower left pot (LFO FREQ) to change modes. Release the button to select the mode. The mode will be remembered next time you power on the device.

Mode 2 has the same controls as mode 1, but the device functions as a monosynth with higher sound quality. Only one note may be played at a time.



# Synthino Mode 3

Mode 3 has different controls. It allows you to change the waveform used by the LFO. This lets you produce some very interesting oscillations!



# Synthino Fine Tuning Procedure

The pitch of the Synthino can be fine-tuned to match your other instruments.

When powering on the device, hold down the rightmost button. You will hear two beeps, then the Synthino will play an A4 note (A above middle C, 440Hz). Turn the PITCH knob until the note is tuned to your liking and release the button. The Synthino is now tuned, and will remember the tuning even after the power is off.

