The Bonkulator – Overview

The Bonkulator is a Eurorack module that fits into a 3U x 12HP slot. It features 8 programmable outputs and 6 programmable inputs. The front-panel user controls consist of a 128x64 pixel 2-color OLED display, a rotary encoder for adjusting parameters and a button for each trigger and output.

Pressing and holding the trigger buttons toggle the trigger enable/disable. Pressing the output buttons brings up the configuration menu for each output.

In addition to the front panel controls, the Bonkulator provides WiFi and Terminal interfaces. The WiFi interface is a REST API and the Terminal interface is ANSI X3.64 via the Arduino micro-USB connector. These interfaces greatly extend the usefulness and capabilities of the Bonkulator. Scripting, patch management, dedicated GUIs and even Internet-connected IoT apps are now possible. And using a remote interface means that you no longer have to adjust tiny dials amid a forest of patch cords. This benefit cannot be fully appreciated until it is experienced directly.

# 8 Outputs

* In general, the output value follows a selected shape
* Shapes can be from the factory list or user defined
* Factory shapes include ramp-up, ramp-down, sine, haystack and others.
* Shapes can contain from 1 to 128 steps.
* Outputs can be programmed to be one of the following.
  + DC Envelope
    - +/- 5V analog signal
    - Output value follows the selected shape
  + Pulses
    - Pulse width follows shape
    - #-of-pulses can be set from 1 to 999
    - High and low values can be set from +/-5V
  + Toggle
    - Toggles at end of period of selected output
    - High and low values can be set from +/-5V
* Outputs can be programmed to be triggered or clocked by any of the trigger inputs.
* Outputs can be triggered by multiple triggers
* Initial delay after trigger is programmable from 0 to 99999 milliseconds.
* Blanking period after trigger is programmable from 0 to 99999 milliseconds.
* Outputs can be scaled by UI setting or by CV input.
* Outputs can be offset by UI setting or by CV input.
* Output period can be set via UI or by CV input.
* Output repetitions can be set from 1 to 65,535
* Output quantization can be enabled or disabled
* Output can be randomized from 0-99%

# 4 Trigger/Clock Inputs

* Triggers activate output functions.
* When Output is set to Ext Clk mode, trigger inputs increment the shape step
* The trigger inputs respond to a positive-going signal or a button press.
* Each trigger can be independently enabled or disabled.
* An LED indicates when any attached output is active. This LED will also flash in a distinctive pattern to indicate when the trigger is disabled.

# 2 CV Inputs

* +/-5V input range.
* LED Clip indicators

# Applications

* Envelope generator
* Rhythm generator
* Pulse stretcher/multiplier
* Sample and Hold
* LFO
* Sequencer
* Quantizer
* Randomizer
* Something new…?