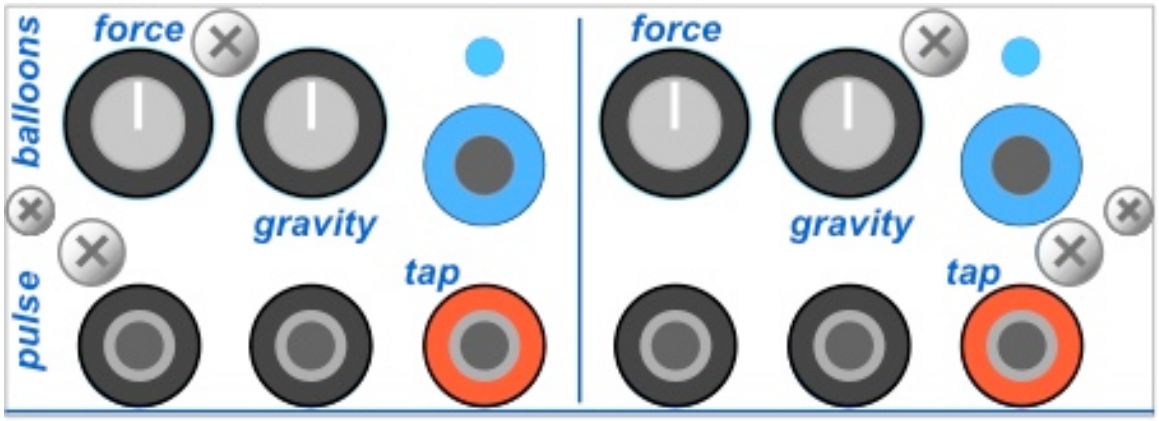
So what is this thing?

The Pulse Balloons module is a flavor of pulse integrator wrapped in a balloon metaphor. For each pulse into the "tap" input the balloon is pushed aloft by the amount of "force" applied. The balloon is pulled back to earth by the attraction of "gravity." Some examples:

Decay-only envelope – If you set the Force all the way high, and Gravity fairly low, say 10:00, every time a pulse hits Tap, the output goes high, and decays at the Gravity rate. If you set force very low, but put something like a fluctuating random voltage from a Source of Uncertainty into the Pulse Balloons' Force jack, you will get an envelope the peak of which is controlled by the random voltage.

Pulse density detector – This can be quite useful in self playing patches to act as a "governor" to keep things in a range you like. For this, set the Force and Gravity quite low, and feed in a varying pulse stream from some source (e.g. Pendulum Ratchet or Function Generator.) The Balloon will rise a little bit for each tap, but it is also decaying fairly slowly because Gravity is low. If the pulses come in faster than the Gravity time constant, then the Balloon continues to rise, but once the pulses slow down the Balloon falls back down. It can be a little tricky to adjust the controls to match the range of the input pulse stream. You are trading off smoothness of the Balloon action against speed of the Balloon responding.

What do the different LED colors mean? – The brightness of the LED is proportional to the Balloon voltage. If the LED is red, then the result of the most recent Tap is lower than the previous Tap. If the LED is blue, the most recent Tap took the Balloon higher than the previous Tap. If the LED is purple-ish, the current and previous taps brought the Balloon to about the same place.

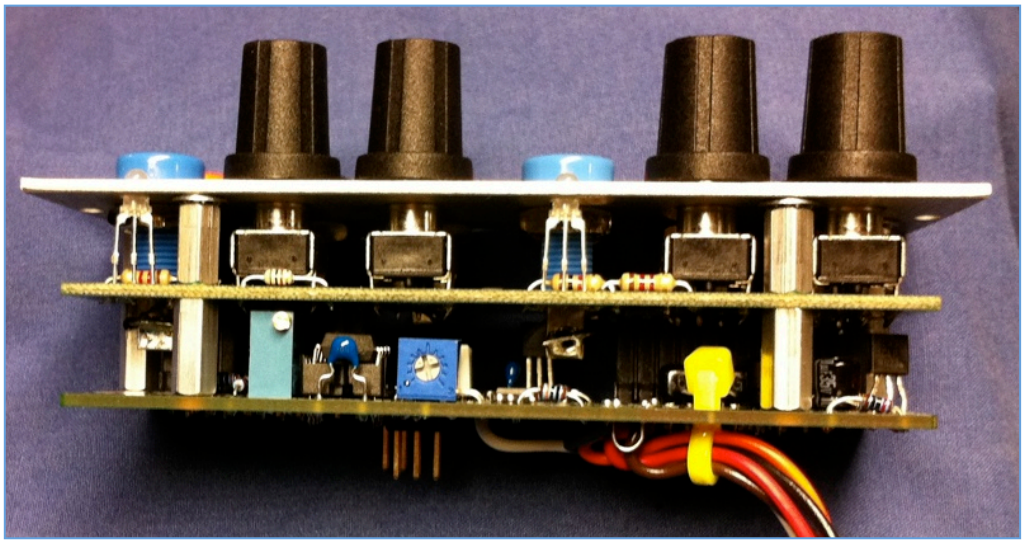


Trimmers

There are two trimmers on the PB, one for tap threshold, and one for output scale. The tap threshold is the smaller blue trimmer nearer the center of the board. It is set for a little under 7 volts to accommodate the 250e, which has a sort of low pulse level.

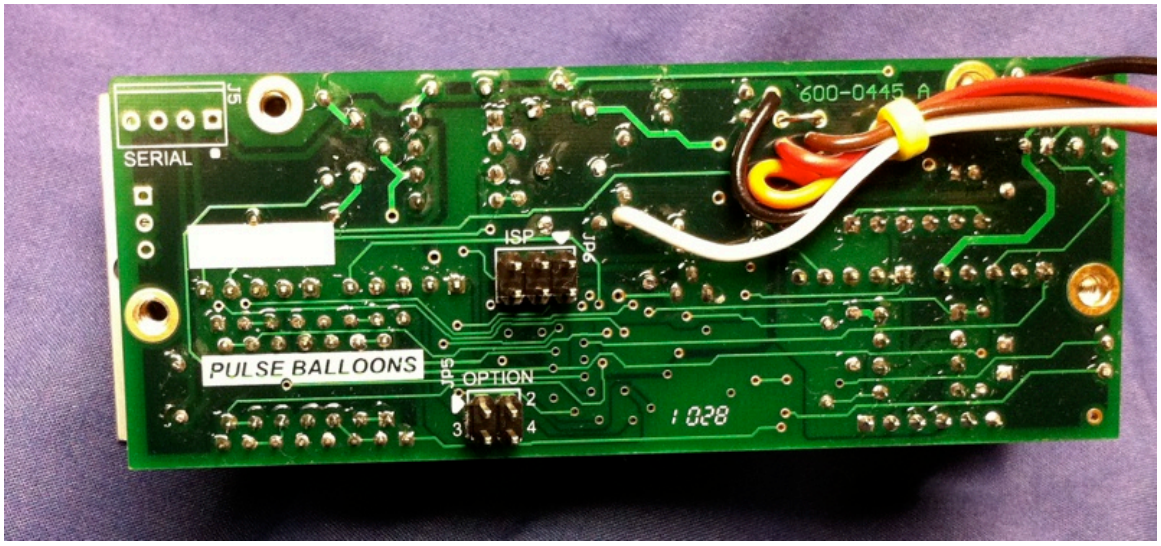
12/28/2010

The other trimmer closest to the side of the board controls the gain of both balloons. I set this up to drive my 259e, because the 259e doesn't have a panel trimmer, and seems to require a slightly larger range than my 261es. This trimmer only needs to be touched when trying to use one of the quantized modes.



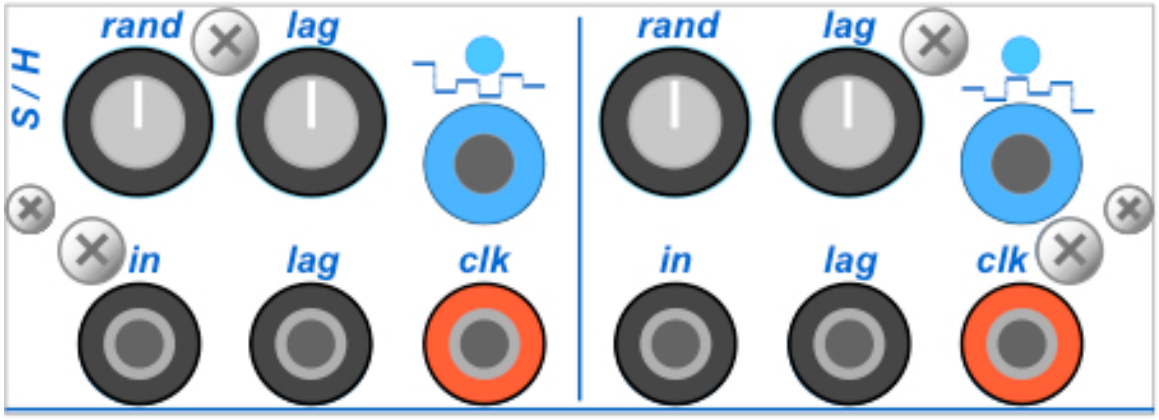
Alternate Personality

On the back of the PB there should be two jumpers hanging off of a little set of four pins under a label OPTION. There's a triangle on Pin 1, and pins 2, 3, and 4 are labeled. The jumpers go between pins 1&2, and between pins 3&4. With no jumpers you have a standard PB. With just 1&2 jumpered, you have a sample/hold, with 1&2 and 3&4 you have a quantized sample/hold. The last possible option is just 3&4, which is mostly there for me to trim the PB, but still might be useful to someone. In this mode the FORCE knob & jack select semitones, and the GRAVITY knob and jack select octaves. The knobs and jacks are still sampled whenever a pulse comes into the TAP jack.

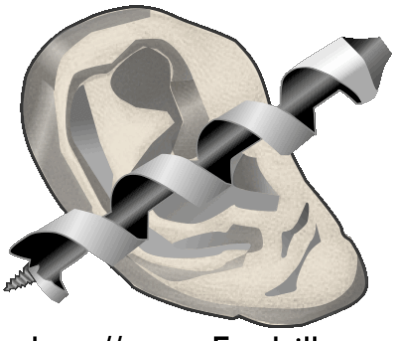


I may end up doing a panel for this alternate personality, but because of the way the module is constructed, the panel can't easily be swapped. The module could be ordered either way,

though. If I do make the panel it would look something like this:



The Sample/Hold has two inputs: a CV from the In jack, and a random voltage amount set on the Rand knob. The output of the Sample/Hold goes into a Lag section, which slows down the rate of change. This Lag can be voltage controlled.



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