

Introduction

Luci is based on the ideas exposed by **Jose M. Berenguer** in his book "*Luci, sin nombre y sin memoria.*" (2007). Please find more here: <http://www.sonoscop.net/jmb/masluci/lucingles.html>.

The name "Luci" is a common abbreviation of spanish *Luciérnaga*, meaning *Firefly*, and refers to the clouds of this insects which in some tropical environments use their bioluminescence for attracting mates, and show the kind of synchronization phenomena evoked by this model.

The main idea is that each Luci cell has an internal signal rising from 0 to 1 at a speed determined by the Frequency parameter. When this internal signal reaches 1, it goes back to zero and triggers an impulse thru its four output ports. Each Luci cell also has four inputs to receive trigger impulses coming from connected nearby cells. When she receives one of this incoming triggers, Luci advances her phase in an amount determined by the Influence parameter. So, aside from playing with different parameter values, we can connect many Luci cells in different topologies to experiment with the interesting synced behaviors arising.

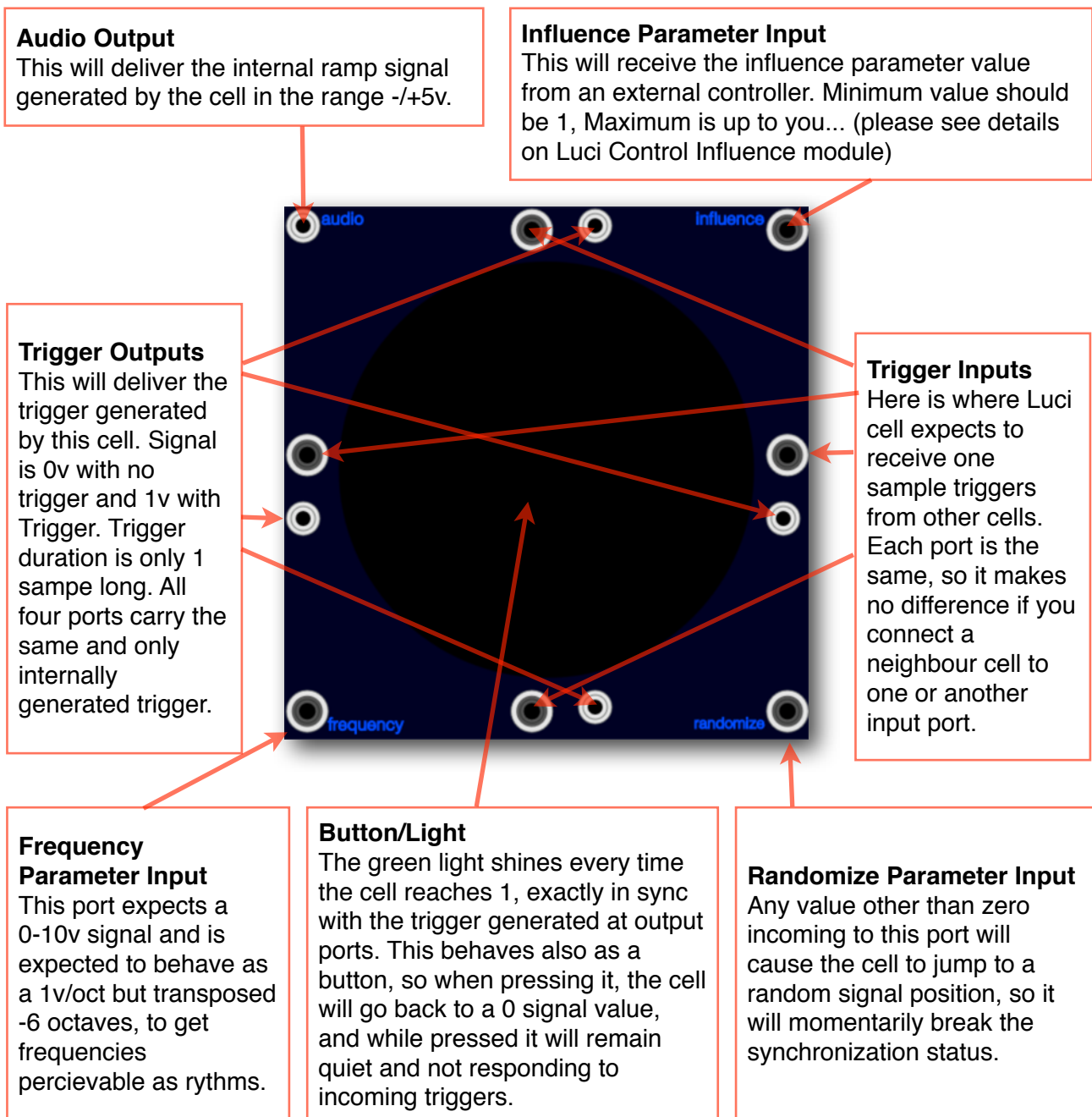
In this release, a patch is delivered with a simple squared topology of 8 cells per side, where each cell is connected to the four closer cells siting on her north, east, south and west. Cells on the extreme of rows and columns are connected side to side, giving a kind of "infinite" or "closed" network of triggers.

User is suggested to modify such topology, connecting diferent quantities of cells in different arrangements. That is the reason why we did not offer a single module with a fixed configuration of cells (whose topology could then only be changed by code) and instead we supply discrete cells modules and complementary parameter adjusting, signal routing and mixing modules for you to experiment with; using the cabling features of VCV.

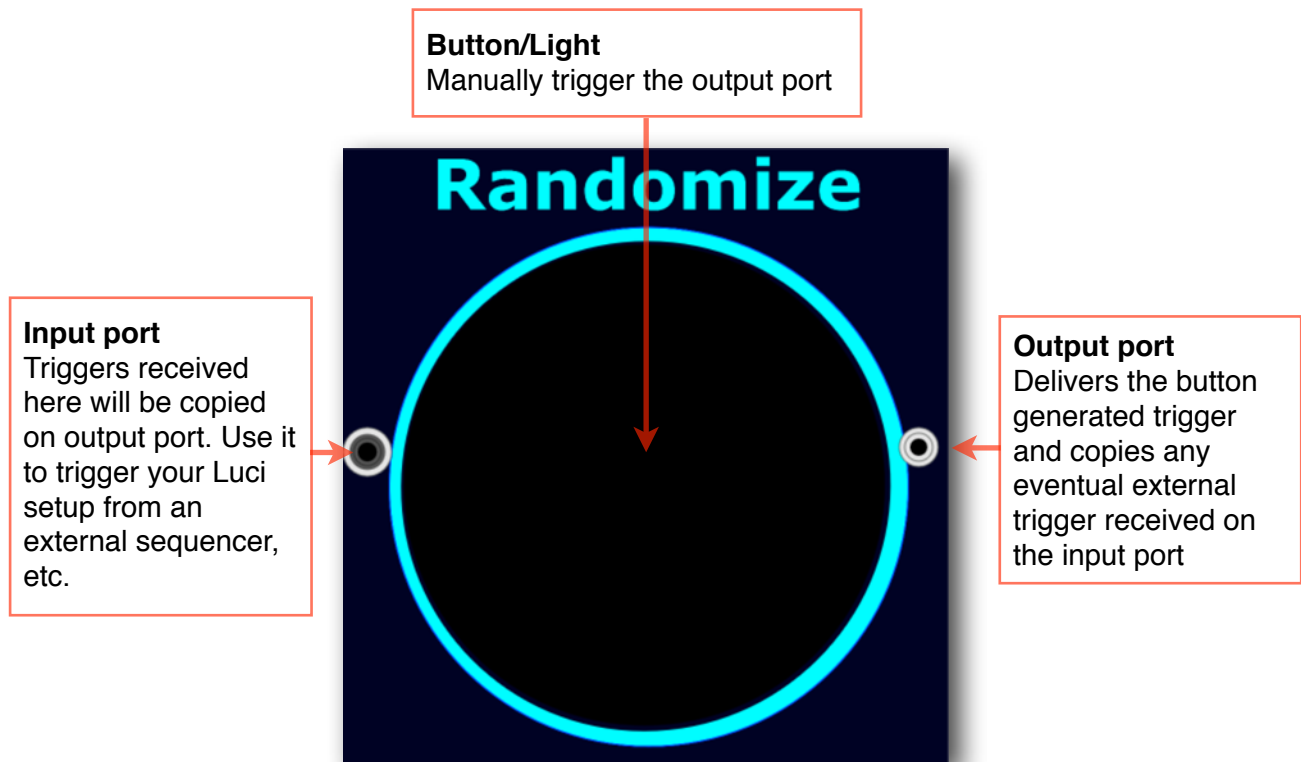
After installing the package, user is suggested to Load the `Luci8x8_base.vcv` patch found in the `/res` folder, only as a starting point.

Modules description

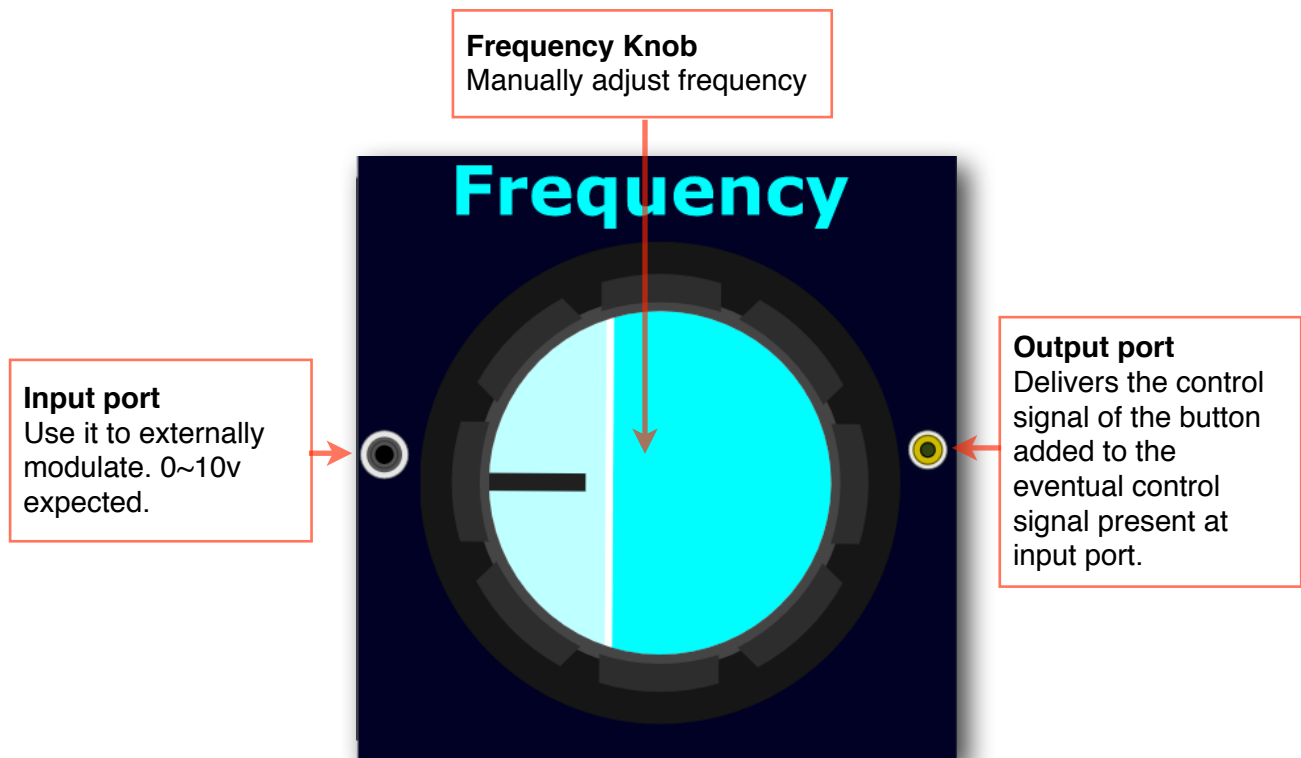
Luci Cell



Luci Ctrl RND



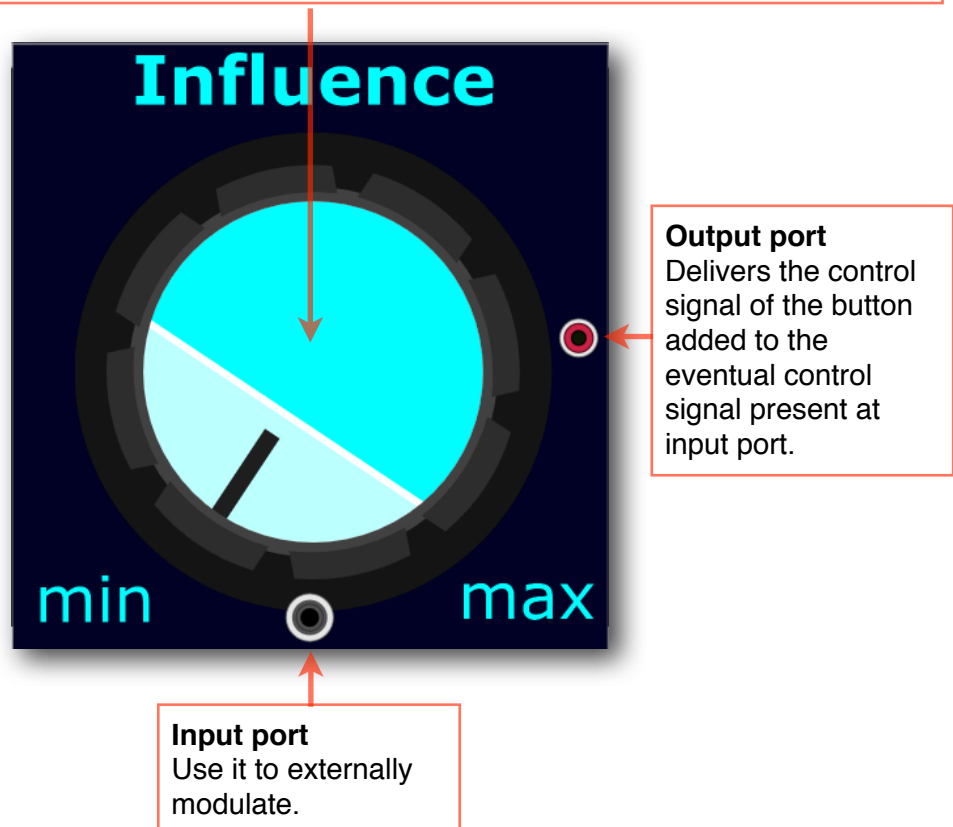
Luci Ctrl FREQ



Luci Ctrl INFLUENCE

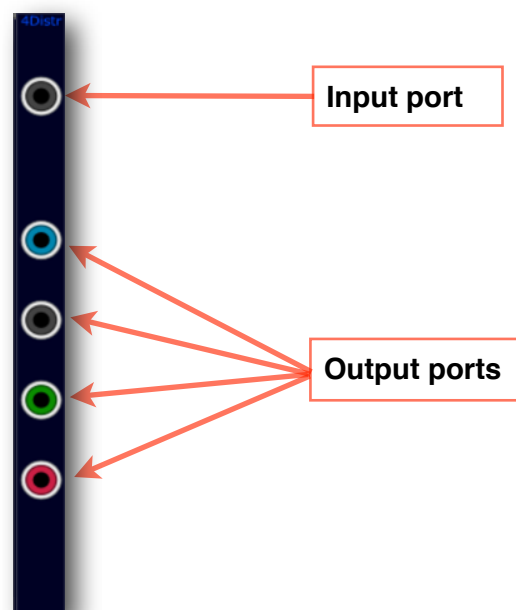
Influence Parameter Knob

Manually adjust influence parameter. This parameter determines how much the phase of a cell will advance when receiving external triggers from connected cells. In this release the range for this parameter goes from 1 (that is, no influence, as it acts as a multiplier) to 1.1. The time function to reach full synchronicity is frequency dependant, so the same influence value in a defined network of cells will give faster full sync times the higher the frequency is.



Luci 4 Param Distr

This is a simple convenience module. Signal received on the input port will be copied to the 4 output ports. Several modules used in cascade allow to distribute a single connected parameter control knob module values to as many connected cells as needed.



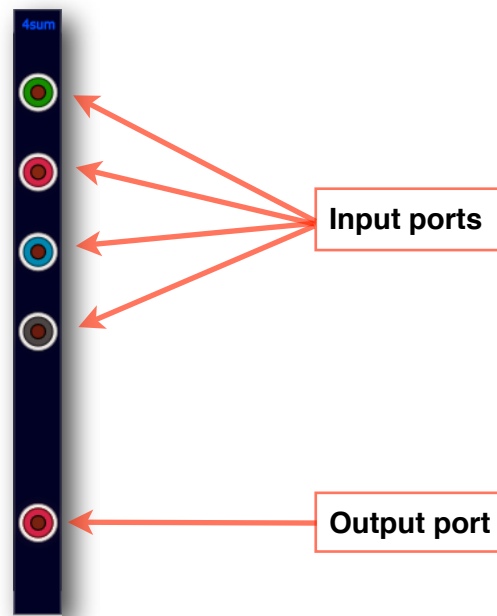
Luci 4 Audio Sum

This is a simple convenience module for mixing 4 audio signals into one.

It is a dirty shortcut that barely deals with the large dynamic range obtained with the 64 cells on the example patch.

Signals on the four input ports will be summed up and divided by 4 to keep it at 0dB, so depending on the phase of feeded signals, can be a real waste of dynamics.

There is plenty room for improvement here...

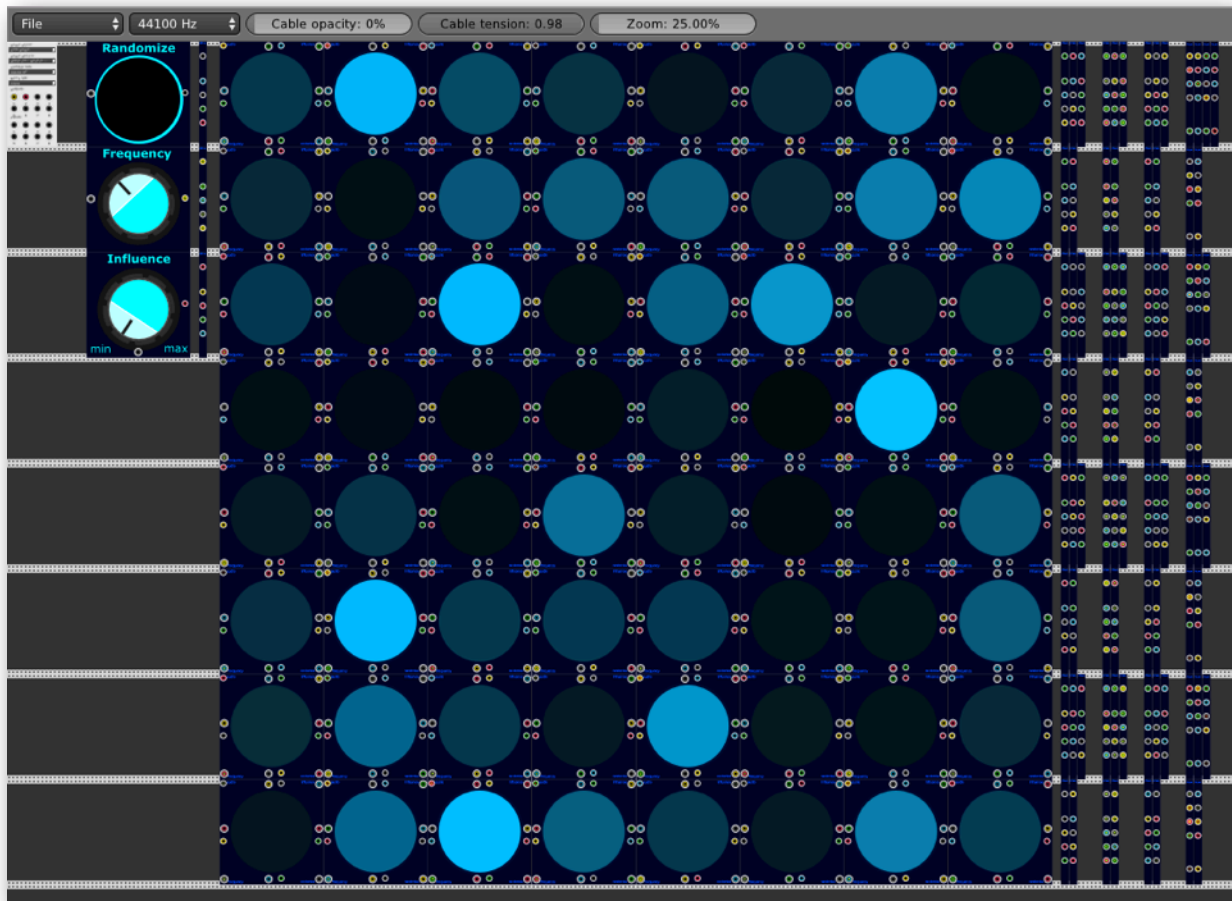


Example patch description

Luci8x8.csv

Please find latest version here:

https://github.com/NonLinearInstruments/NLNRI_VCV RackPlugins/blob/master/res/Luci8x8.vcv



As stated on the introduction, this patch is only an example of what can be done with Luci.

Here we have a square arrangement of 8 x 8 Luci cells. Each cell is connected to her 4 neighbours and all of them share the same frequency and influence parameters. A convenience Randomize button is supplied, also shared by all the cells. Generated audio signals are summed together and connected straight to the audio interface. Also adjusting cable opacity, connections will be made visible and its function should be self-explaining.

If you run into problems when loading the patch, it may be due to the patch having a core audio module with interface settings only available in MacOSX environments. So if you are running it on a Windows or Linux environment, you may find useful the alternative version of the patch, saved with no audio interface.