

density pot
density CV input
input
reset
sensor vent
comparator out
temperature
humidity
pressure
altitude

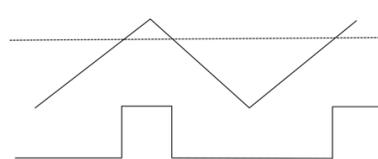
Overview:

KLIMA is the first of many experiments that welcomes in the surrounding atmosphere as a fundamental building block for your modular patches. Inspired by traditional logic modules and based on the Bosch BME280 sensor, KLIMA derives random gates by comparing your analog signals to the ambient temperature, humidity, atmospheric pressure and relative altitude. Klima makes a gesture towards moving the environment, its weather and atmosphere away from its position as backdrop or object of representation, to an active agent of music-making. Expand KLIMA with the Kiel module to turn your gates into random stepped CV.

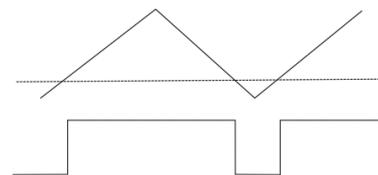
How it works:

KLIMA takes an incoming signal (up to $\pm 5V$) and passes it through a comparator whose threshold is set by the density potentiometer. This parameter sets the probability that you'll get a logic high (+5V) at the first output (see illustrations). In addition to giving a relatively predictable output related to the original input, the comparator signal is then compared to four independent binary signals to produce corresponding gates when a logic-AND occurs – that is, when both signals are high at the same time. The frequencies of these binary signals are determined by the atmospheric measurements from the sensor as well as the density knob, which is controllable by a unipolar control voltage input (CV, 0-5V). So, as the surrounding environmental conditions change, so too does the frequency of each of these waves and, therefore, the probability of a high gate output. What this ultimately means, is that the same patch will take on different characteristics depending on where you find yourself.

As for the reset input, this feature does exactly what you'd think – it resets the four atmospheric binary signals to give you a bit more control over the random gates KLIMA produces, allowing for loops of organically-flavored syncopation.



With the density knob turned toward counterclockwise, the comparator outputs +5V when the input voltage is higher than the threshold level. This decreases the probability that the signal will be high at the same time as the waves determined by the sensor output.



With the density knob clockwise, the chances that the comparator will output a high signal will increase (depending on the input signal). This makes the likelihood of a high signal at the other outputs much greater.



Note: when a bipolar signal is detected at the input, it is possible that the Comparator LED at Output 1 will illuminate before the input LED. This is because the comparator detects all values above and below 0 while the input LED indicates a 0-crossing only.

Features

- 2mm aluminum front panel
- Reverse polarity protection
- Pseudo-Random gate outs
- Wave reset input
- Bosch BME280 sensor
- Software-calibrated
- Expander capabilities with KIEL

More documentation, including videos, can be found on fkmg-circuits.com and modulargrid.net.

First Patch:

At its heart, KLIMA is a very simple pseudo-random gate generator that can be patched in any manner of ways, so long as it has an input signal. It can trigger random events across different modules or modulate the parameters of one. To help you get started, I've shared a test patch below that I used while developing it. It's a simple illustration of the syncopated percussive possibilities you can get out of this little module. In this patch, I make primary use of the main comparator and the reset trigger to isolate a semi-stable loop. Remember that, since the module reacts to your environment, fluctuations in your space and within your modular case can, and will, eventually affect the density of outputs. We can, however, get some nice loops going for some time since it's rare that your environmental conditions will shift radically during use – unless, of course, you're patching in a hot air balloon or walk into a sauna mid-performance.

This patch will hopefully give you a straightforward sense of what's going on under the hood and get you on your way to more exciting configurations. On your filter, get the resonance to just below oscillation for a nice bongo-like sound, and vary the other parameters of that and the Envelope Generator as you fancy. For a 'gridded' loop, a reset trigger set to some even relationship with the input works best. Enjoy!

