nano VCV Random CV Generator Module User Guide

Contents

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Specifications:

- Random CV generator
- 4 types of randomness
- Triggerable sample-and-hold function
- Internal clock tempo control
- Probability setting for random value generation
- Blend old with new values control
- Shape control for random outputs

Product Usage Instructions

Powering Up:

1. Turn off the power of your modular synthesizer.
2. Double check the power cord polarity to avoid damaging electronic circuits.
3. Ensure the RED mark on the PCB power connector matches the colored line on the ribbon cable.
4. Turn on your modular system after verifying all connections.
5. If you notice any anomalies, turn off your system immediately and recheck connections.

Description:
VCV Random is a hardware version of a classic from the VCV Rack fundamental library. It serves as a random CV generator with 4 types of randomness and a triggerable sample-and-hold function. The sliders on the module allow you to control the internal clock tempo, probability of triggering, blending old with new values, and shaping the random outputs.

Layout:
The randomness sliders on the module include RATE (tempo control), PROB (probability setting), RND (blending previous and random values), and SHAPE (transition shape control). The module also features CV inputs, trigger input, offset switch, and trigger output.

Controls:
The module's controls include RATE for adjusting clock tempo, PROB for setting probability of new random values, RND for blending values, and SHAPE for controlling transition shape. The CV attenuverters allow you to adjust signal strength and direction based on the switch position (unipolar or bipolar).

FAQ:

1. **Q: What should I do if I notice anomalies after powering up?**
   A: If you notice any anomalies after powering up, turn off your system immediately and recheck all connections to ensure correct setup and prevent potential damage.
2. **Q: How do I set the tempo of the internal clock?**
   A: Use the RATE slider to adjust the tempo of the internal clock. Each clock trigger will be indicated by a blinking light on the slider.

Thank you for choosing VCV RANDOM for your Eurorack System.

Powering up

Turn off the power of your modular synthesizer. Double check the power cord polarity. If you plug the module backwards you might damage its electronic circuits.

If you flip over your VCV RANDOM, you will find the "RED" mark at the PCB power connector, which must match the colored line on the ribbon cable. Once you have checked all the connections, you can turn on your modular system. If you notice any anomalies, turn your system off right away and check again your connections.

Description

VCV Random is the hardware version of a well-known classic from the VCV Rack fundamental library. A random CV generator with 4 types of randomness and a triggerable sample-and-hold function. Its sliders allow you to set the internal clock tempo (RATE), shape the probability of triggering (PROB), blend old with new values (RND) and set the shape of all four random outputs (SHAPE).

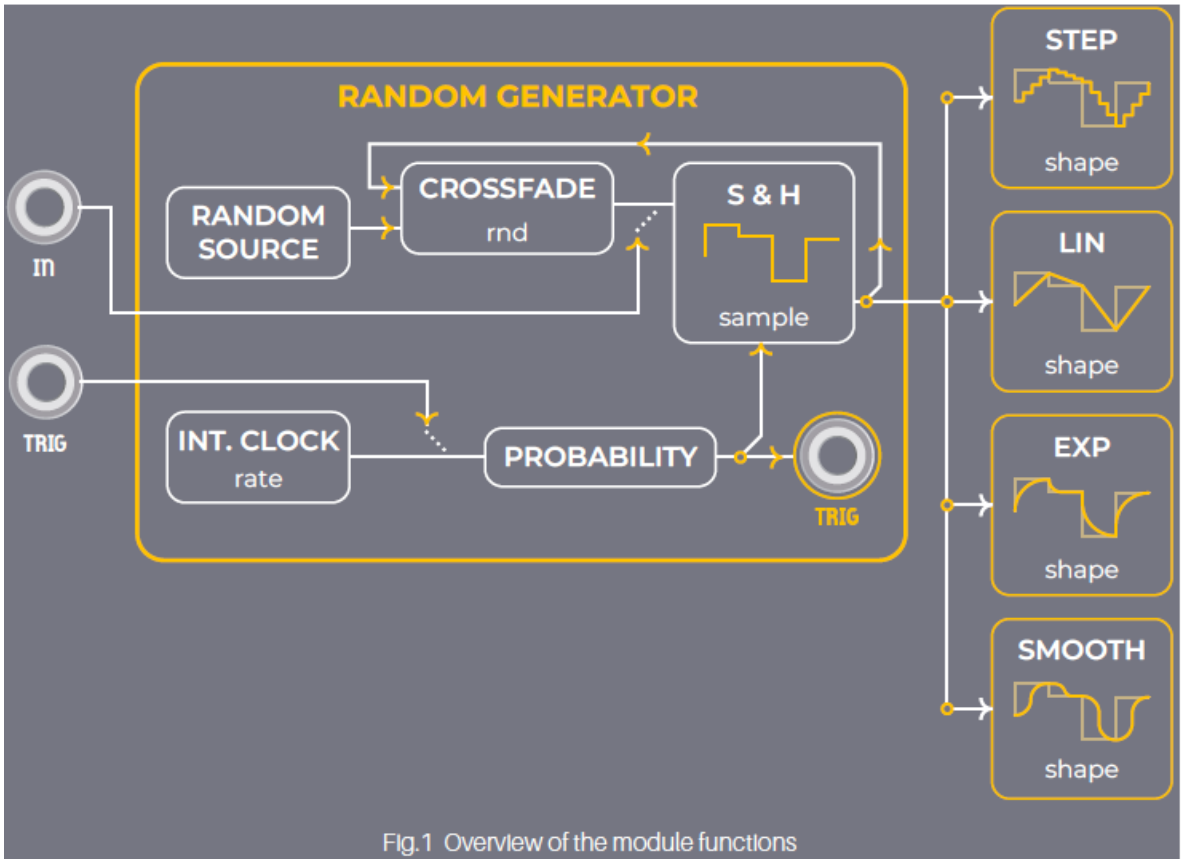
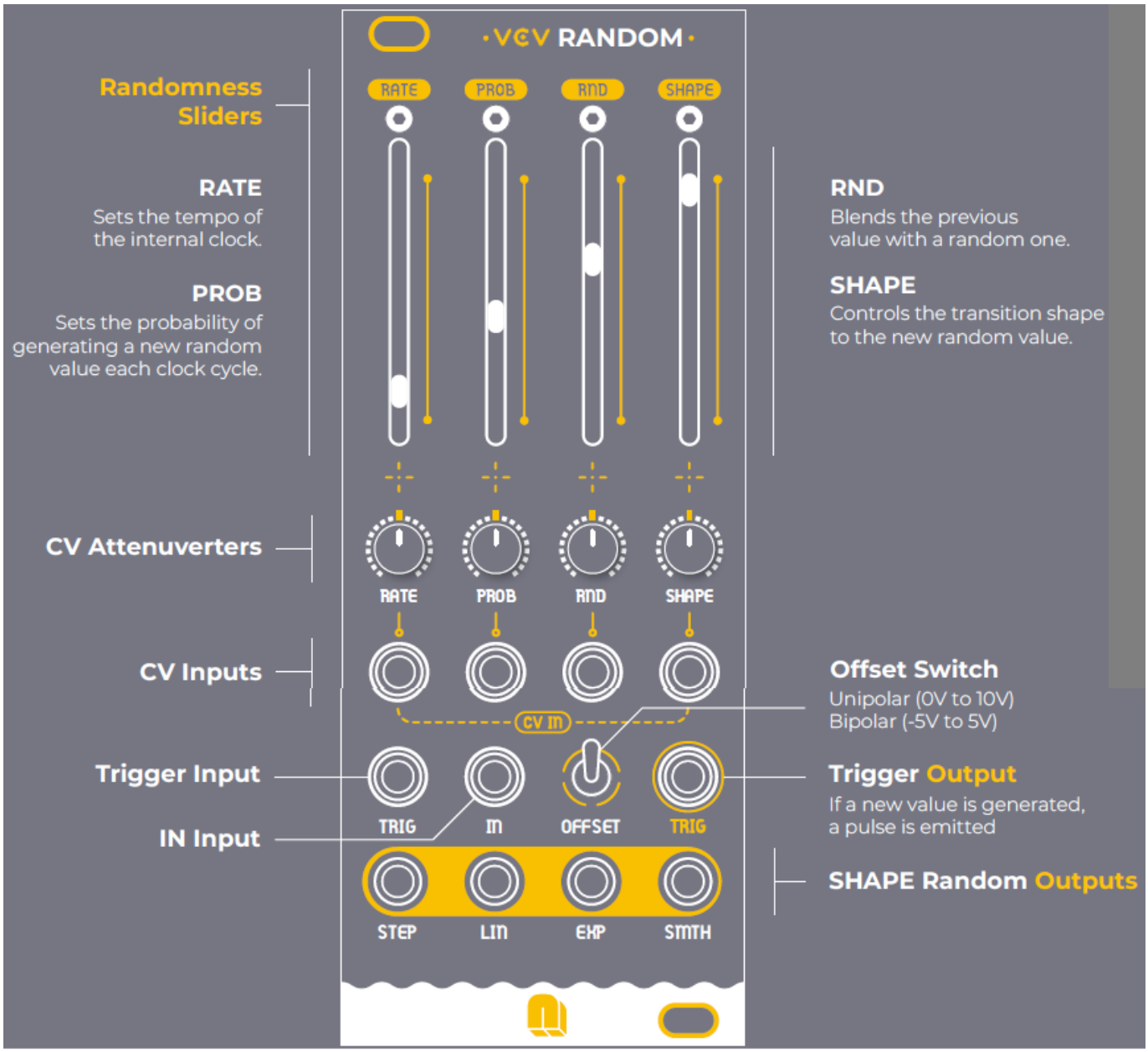


Fig.1 Overview of the module functions

Layout

This image will clarify the function of each of the elements of the module.



Controls

Randomness Sliders

RATE

Adjusts the internal clock's tempo. Upon each clock trigger, the RATE slider light blinks, and there is a chance for the internal random source to generate a new value.

PROB

Sets the probability of generating a new random value each clock cycle. If one is generated, the PROB slider light blinks and a pulse is emitted from the TRIG output.

RND

Blends the previous value with a random one, in a proportion determined by the RND slider. It affects the range of the voltage output.

SHAPE

Controls the transition shape to the new random value across all four outputs.

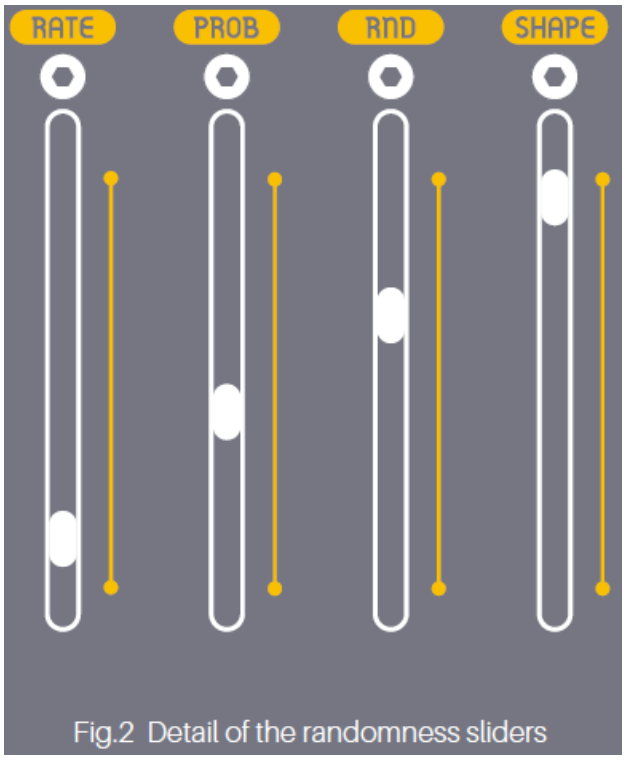


Fig.2 Detail of the randomness sliders

CV Attenuverters
These knobs control how much and in what way an external signal affects the randomness parameters.

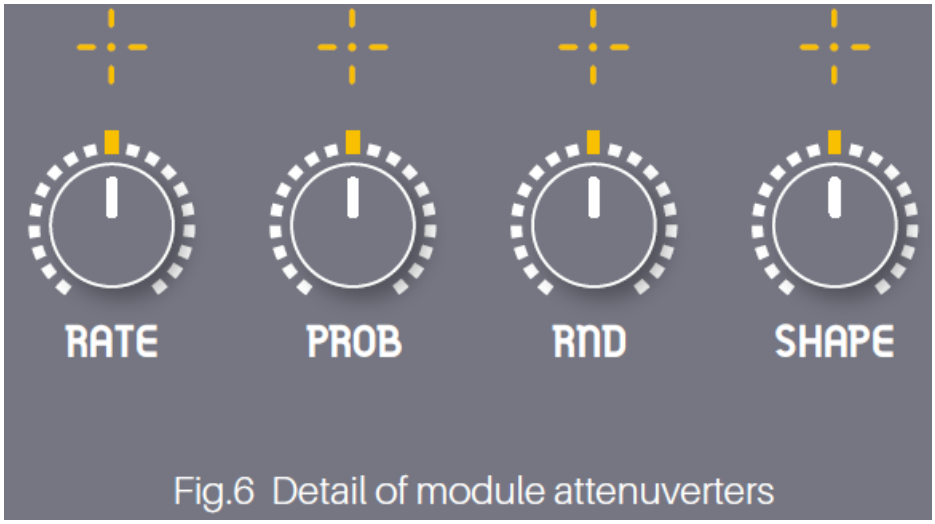


Fig.6 Detail of module attenuverters

In the center position (0), the signal does not affect the parameter. If you turn it to the right, it attenuates (turns down the strength) the signal. If you turn it to the left, it inverts the signal, making things that were going up, go down instead, and vice versa.

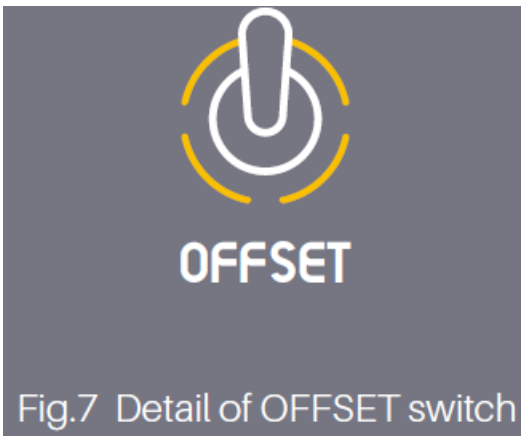


Fig.7 Detail of OFFSET switch

Offset Switch
Unipolar (0V to 10V).
With the switch facing up, the signal starts at 0 volts and can go up to 10 volts. This setting is great for controlling things that have a clear starting and ending point, like the brightness of a light.

Bipolar (-5V to 5V).
With the switch facing down, the signal can move both ways: it starts in the middle (at 0), can go down to -5 volts, or up to 5 volts. This is useful for parameters that need to move in two directions, like pitch, which can go higher or lower from a central note.

Inputs & Outputs

Inputs
/CV INPUTS
Modulate the Rate, Probability, Random Range, and Shape with an external voltage. The applied signal is summed to each slider position.

/TRIG IN
If the TRIG input is patched, the RATE slider is ignored, and the clock is only triggered when an external trigger is received. The PROB slider is used to filter this trigger by some probability.

/IN
If the IN input is patched, this external voltage is used instead of a random voltage upon each trigger. The RND slider has no effect.

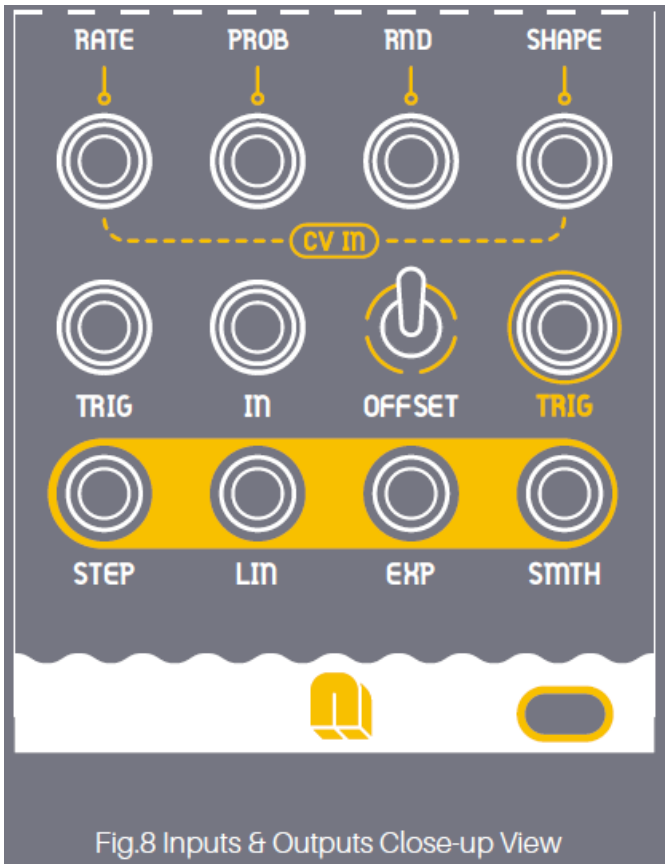
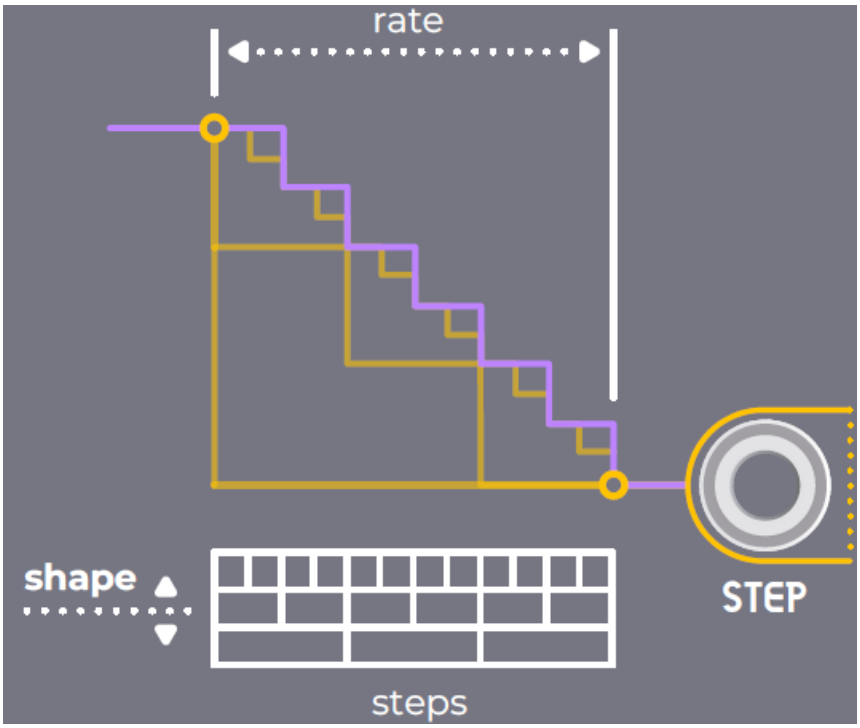


Fig.8 Inputs & Outputs Close-up View

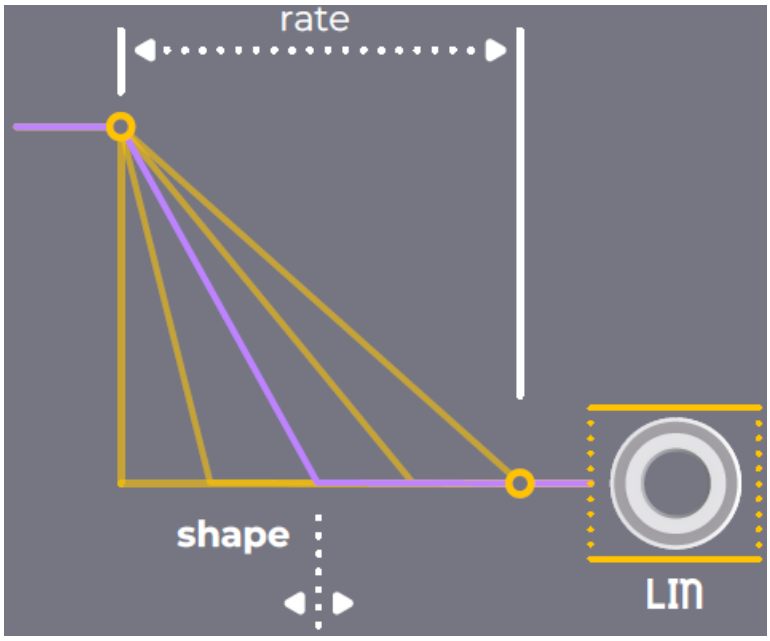
Outputs
/TRIG OUT
if a new value is generated, a pulse is emitted from the TRIG output.

Outputs

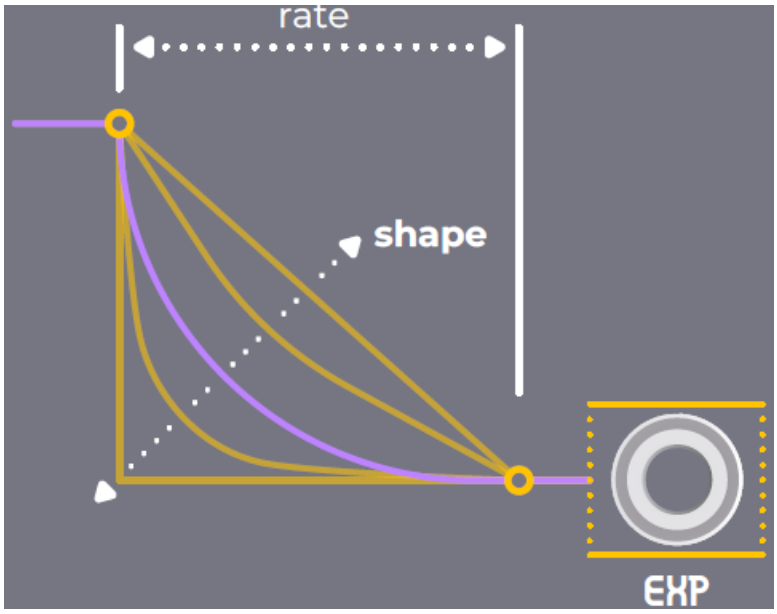
/STEP
The STEP output jumps to the new value in one step at 0% SHAPE, and divides the transition into 16 steps at 100% SHAPE.



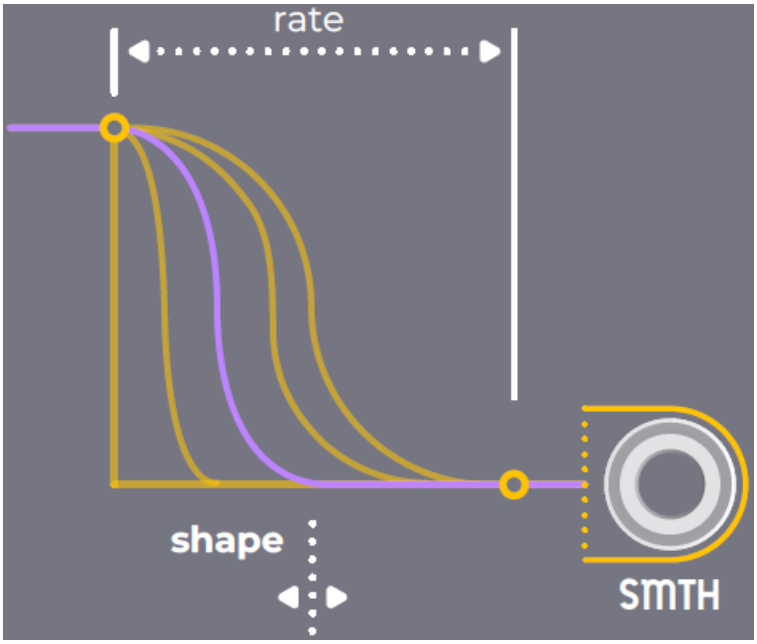
/LIN
The LIN output immediately reaches the new value at 0% SHAPE, and takes the whole clock cycle to do so at 100% SHAPE, staying constant in between.



/EXP
The EXP output shifts exponentially, becoming linear at 100% SHAPE, with its pace adjusted by the SHAPE slider.



/SMTH
The SMTH output transitions smoothly, with the speed controlled by the SHAPE setting, holding at the target until the cycle ends.



Compliance

This device complies to the EU guidelines and is manufactured RoHS conforming without use of led, mercury, cadmium and chrome. Nevertheless, this device is special waste and disposal in household waste is not recommended.

This device meets the requirements of the following standards and directives:

- EMC: 2014/30/EU
- EN 55032. Electromagnetic compatibility of multimedia equipment.
- EN 55103-2. Electromagnetic compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.
- EN 61000-3-2. Limits for harmonic current emissions.

- EN 61000-3-3. Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
- EN 62311. Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields.
- RoHS2: 2011/65/EU
- WEEE: 2012/19/EU

Guarantee

This product is covered by 2 years of guarantee on purchased goods, which begins when you receive your package.

- This guarantee covers

  Any defect in the manufacturing of this product. Replacement or repair, as decided by NANO Modules.
- This guarantee does not cover

  Any damage or malfunction caused by incorrect use , such as, but not limited to:
  - Power cables connected backwards.
  - Excessive voltage levels.
  - Unauthorized mods.
  - Exposure to extreme temperature or moisture levels.

Please contact our customer service – **jorge@nanomodul.es** – for a return authorization before sending the module. The cost of sending a module back for servicing is paid for by the customer.

Technical Specifications

- Dimensions 10HP 50×128,5mm
- Current 63 mA +12V / 11 mA -12V / 0 mA +5V
- Input & Output Signals ±10V
- Impedance Input 10k – Output 10k
- Materials PCB and Panel – FR4 1,6mm
- Depth 40mm – Skiff friendly

Modules are designed and assembled in València.

Contact
Bravo!
You have learned the basic fundamentals of your VCV RANDOM Module.
If you have any doubts, please feel free to contact us.
nanomodul.es/contact

Documents / Resources

	**nano VCV Random CV Generator Module** [pdf] User Guide VCV Random CV Generator Module, Random CV Generator Module, CV Generator Module, Generator Module, Module

References

- **Homepage - NANO**
- **User Manual**