

• VEV RANDOM •

quick guide

Thank you for choosing VCV RANDOM for your Eurorack System.

Powering up

1. Turn off the power of your modular synthesizer.
2. 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.

3. Once you have checked all the connections, you can turn on your modular system.
4. 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).

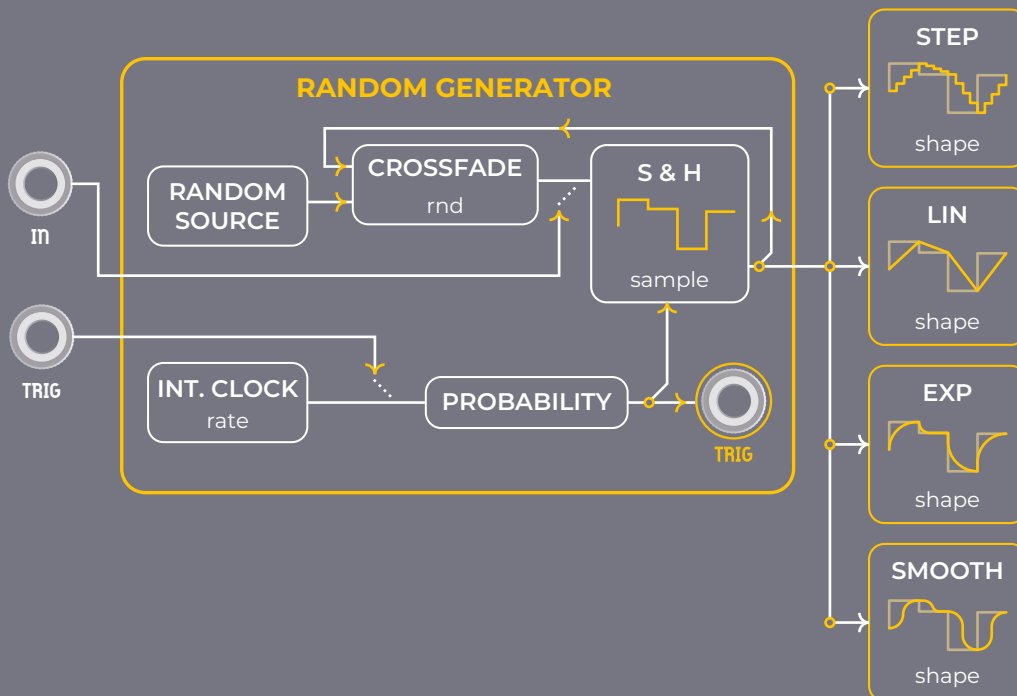
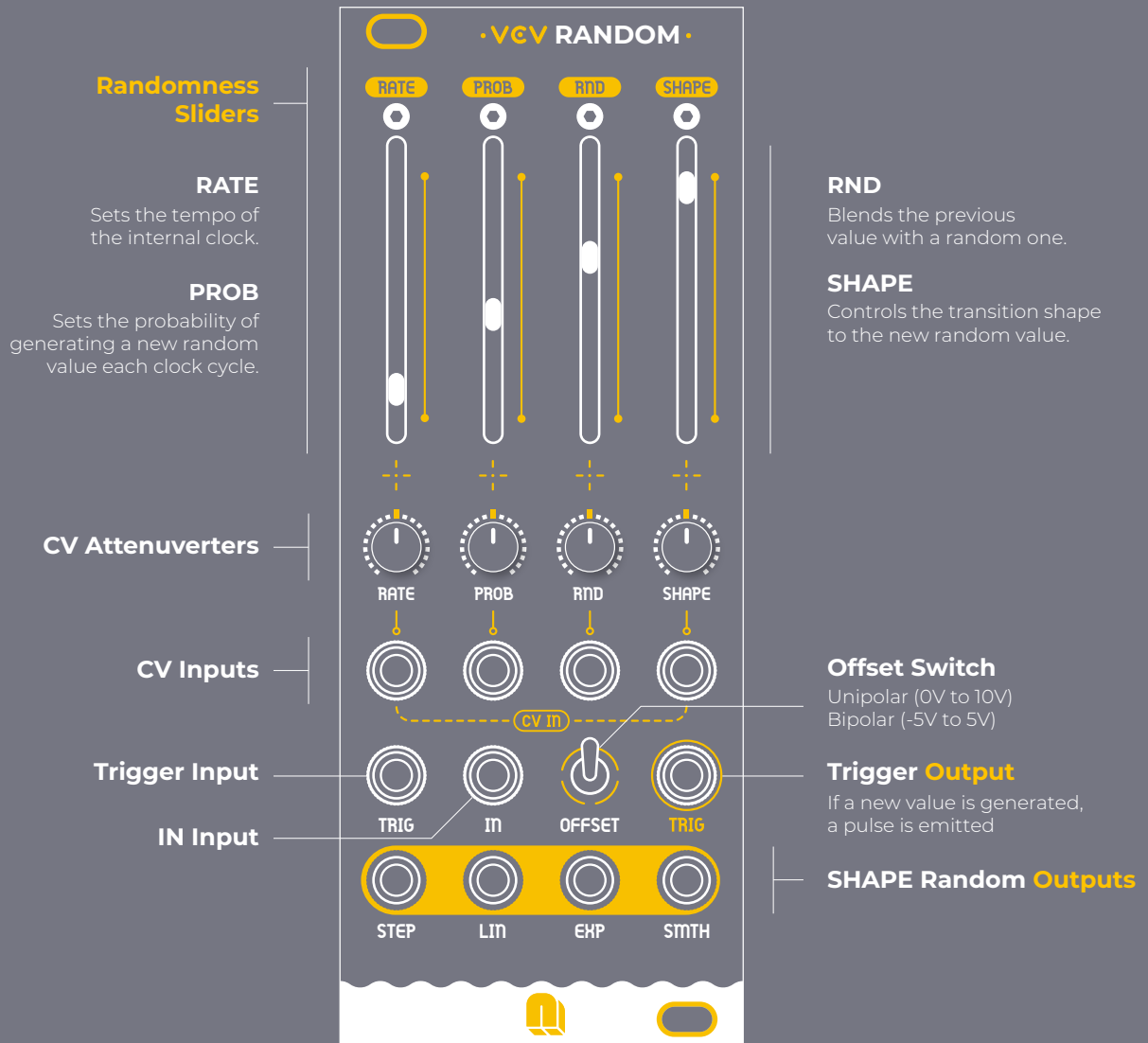


Fig.1 Overview of the module functions

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.

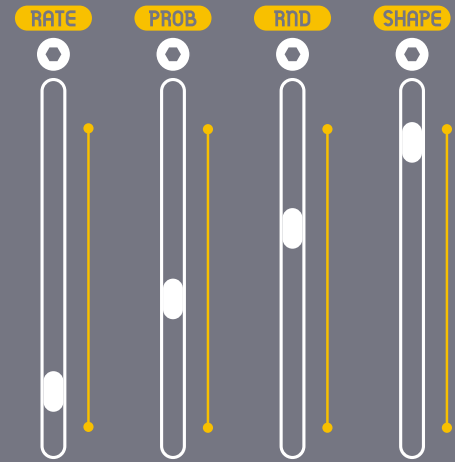


Fig.2 Detail of the randomness sliders

Controls

• CV Attenuverters

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

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.6 Detail of module attenuverters



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.

• Outputs

/TRIG OUT

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

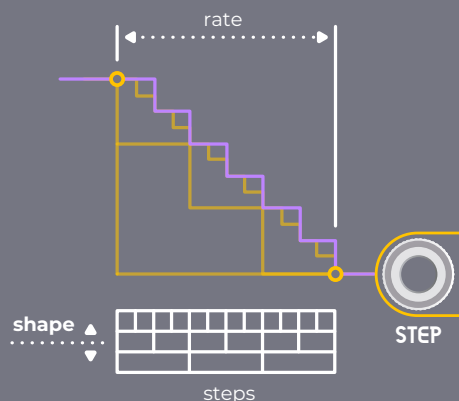


Fig.8 Inputs & Outputs Close-up View

• Outputs

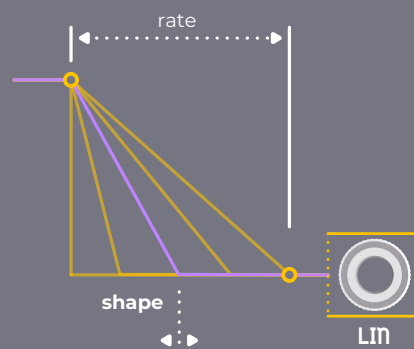
/STEP

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



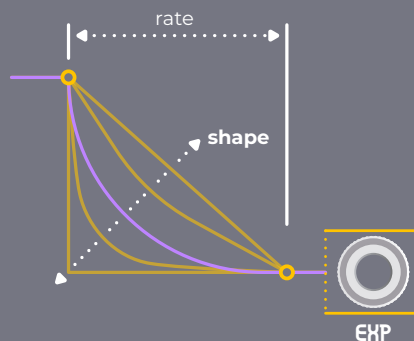
/LIN

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.

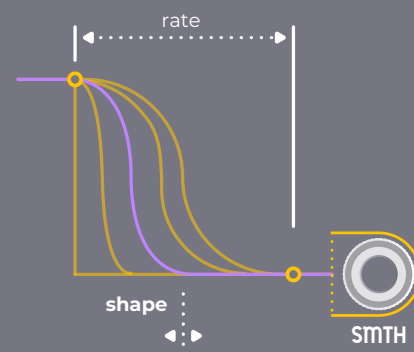


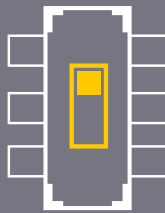
Fig.9 Outputs Close-up View

Self-modulation

Thanks to a switch in the back of the module, you can **normalize the LIN output to the 4 CV inputs** and adjust the amount of modulation for each parameter with the attenuverters.

This adds another layer of randomness to your results, enabling more dynamic and unpredictable outcomes.

DON'T NORMALIZE



NORMALIZE CV

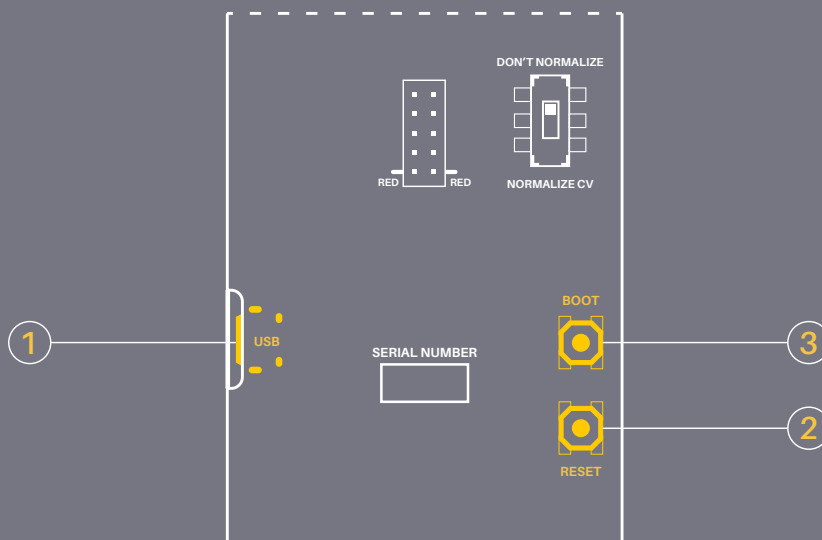
Fig.10 Self-modulation switch in the back of the module

Firmware Update

Follow the procedure below to update the module's firmware:

- 1. Open Update Link.** Navigate to the Web Programmer page by entering <https://electro-smith.github.io/Programmer/> in your web browser.
- 2. Power the Module.** Connect the module to an Eurorack case to power it. The module needs to be powered on to proceed with the software update.
- 3. Connect a USB Cable.** Use a **USB Micro B** (1) type cable and connect one end to the module's USB port, found on the side of the module.
- 4. Enter Update Mode.** With the system powered on, press and hold both the **RESET** (2) and **BOOT** (3) buttons located on the back of the module. Then, release the RESET button first, followed by the BOOT button. This sequence will put the module into firmware update mode.
- 5. Connect to the Module.** The browser-based programmer should now recognize the module as a device, likely listed under the name "STM32 BOOTLOADER" or a similar identifier.
- 6. Select the Firmware File.** Download the appropriate firmware from the [product page](#) of the module, found at the bottom section, next to the specifications.
- 7. Program the Module.** Click on 'Program'. The firmware update process should complete in just a few seconds.

Done! Now VCV RANDOM is updated.



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 50x128,5mm

Current 63 mA +12V / 11 mA -12V / 0 mA +5V

Input & Output Signals $\pm 10V$

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