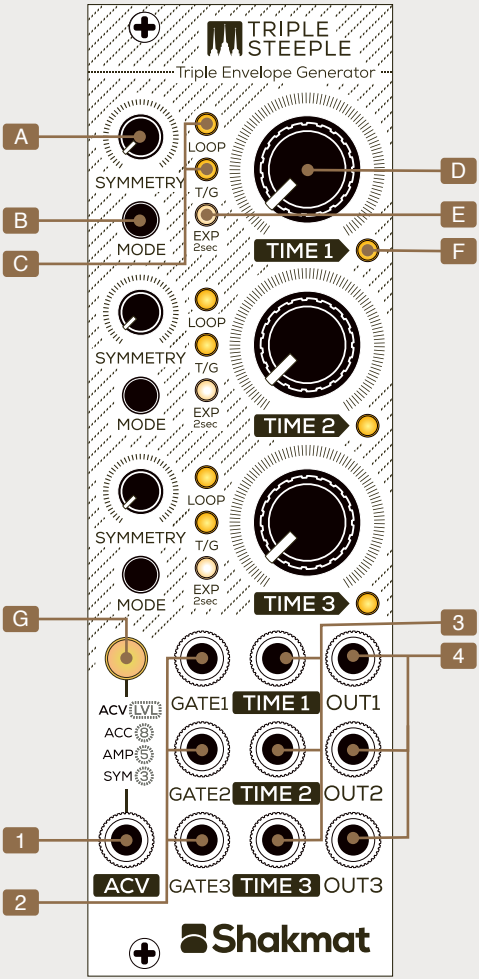
Shakmat
Triple Steeple

- 8HP Eurorack Module
- Built & designed in E.U.
- www.shakmat.com


TRIPLE STEEPLE
Triple Envelope Generator
A
B
C
D
E
F
G
1
2
3
4
SYMMETRY
MODE
LOOP
T/G
EXP
2sec
TIME 1
TIME 2
TIME 3
ACV
LVL
ACC
AMP
SYM
GATE1
GATE2
GATE3
OUT1
OUT2
OUT3
Shakmat

Introduction

The triple steeple is a three-channel envelope generator with control over time and symmetry. With five envelope modes, linear or exponential response, CV control over time, an assignable CV input, and internal normalizations, the module will provide the generation of anything from basic envelope shapes to complex modulation signals.

- A Symmetry potentiometer
- B Mode button
- C Mode LEDs
- D Time potentiometer
- E Shape LED
- F Activity LED
- G Assignable CV/ Level button

- 1 Assignable CV input
- 2 Gate inputs
- 3 Time CV inputs
- 4 Outputs

Installation

The Triple Steeple requires a standard 2x5 pin eurorack power cable. Make sure the red stripe on the cable matches the -12V side of the Triple Steeple power header.

Time & Symmetry

Rather than having a classic attack-decay approach, the Triple Steeple offers control of each envelope's timing and symmetry.

The time parameter, set via the Time potentiometer [D] and CV input [3], is the sum of the attack and decay time. Modifying the time parameter will change the attack and decay time by the same amount.

The symmetry parameter defines the ratio of attack and decay times via the Symmetry potentiometer [A]. Fully counterclockwise, the envelope has zero attack time, and there is only decay. Turning the potentiometer clockwise reduces the decay time as the attack increases. With the Symmetry potentiometer [A] set at noon, the envelope is symmetrical (equal attack-decay times). When the Symmetry potentiometer [A] is fully clockwise, the envelope has an attack-only behavior without decay.

Modes

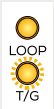
Each envelope has five different modes. To change mode, click the corresponding channel's Mode button [B]. The two mode LEDs [C] indicate the current mode:

01. Triggered
A rising edge triggers a one cycle envelope.

02. Gated
The input accepts gate signals to generate an attack-sustain-release envelope type.

03. Looped
The envelope loops continuously.
A rising edge at the input resets it.

04. Gated Loop
The envelope loops continuously while a high gate signal is present at the input. It instantly returns to its minimum value when the gate signal disappears.



05. Clocked Loop
The envelope cycles and adapts its timing to the incoming clock frequency. In this mode, time acts as a division parameter, with available divisions of 1, 2, 3, 4, 5, 6, 7 and 8, from fully counterclockwise to fully clockwise.

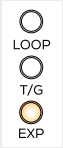
Envelope shape

Each envelope can have a linear (default) or exponential response. Hold the Mode button **[B]** for 2 seconds to switch to an exponential shape (white EXP LED **[3]** is on).

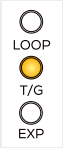
ACV Input & Level menu

To enter the Assignable CV input menu, press the ACV/ Level Button **[G]** once (ACV/ Level button is on). You can now edit the assignment of the ACV input **[1]** to control the symmetry or amplitude of any of the three channels.

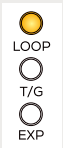
To switch between the different assignments of a particular channel, press its corresponding Mode button **[B]**. The two mode LEDs **[C]** and Shape LED **[E]** indicate the current mode as follows.



01. Symmetry
The ACV input `[1]` acts as a bipolar (-5v to +5v) control of the symmetry, added to the value of the channel's symmetry `[A].`



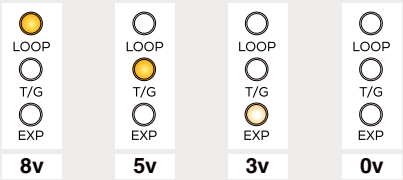
02. Amplitude
The ACV input `[1]` acts as a positive unipolar (0v to 5v) control of the amplitude, which varies between 0v and the amplitude selected in the level menu (see below). This feature will not work if the selected level is 0v.



03. Accent
A high gate signal at the ACV input `[1],` at the beginning of a cycle, the envelope amplitude will rise from the selected level to 8v during its full cycle. This feature only works when the channel level is set to a value other than 8v.

You can assign any parameters to one of the three channels simultaneously.

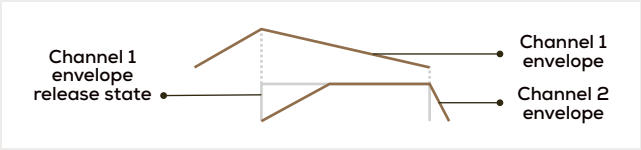
To enter the Level setting menu, press the ACV/ Level button `[G]` a second time (ACV/ Level button is blinking). You can now edit the range of the envelopes.



To exit the menus, and return to normal behavior (mode selection), press the ACV/ Level button `[G]` a third time.

Input Normalization

Channels 2 and 3 receive the decay state of the previous channel when nothing is inserted into their gate inputs [2]. This normalization allows for different applications, as described in this manual's patch ideas section. In this example, you can see the channel 1's decay state acting as a gate for channel 2 in gate mode:

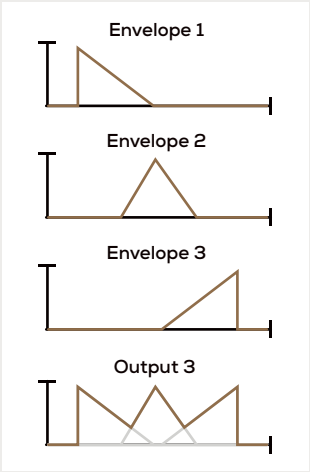


Output Normalization

Output 3 will output the maximum of the outputs of the previous channels unless a cable is inserted to break this normalization.

Inserting a cable into output 1 or 2 removes the channel's envelope from the maximum function.

In this example, the third channel's output [4] delivers the maximum of the three channels when the output jacks of channels 1 and 2 remain unplugged.



Current State Storing

It is possible to save the current modes, response type, levels, and ACV assignment by pressing and holding the ACV button [G] for 2 seconds. All LEDs will blink to confirm the storage.

Patch Ideas

1. Percussive envelopes: set 3 channels of decay with exponential response, enable accents, and start designing drum sounds!

2. Cascaded clocked LFOs: configure the 3 channels in clocked loop mode, insert a clock into channel 1 input, and create modulation signals based on subdivisions (channel 1, 2 & 3) of an incoming clock signal.

3. Delayed envelopes: trigger channel 1, give it some attack time using the symmetry potentiometer [A]. Without anything inserted into channel 2 input, envelope 2 will be triggered when channel 1 attack phase ends. In other terms channel 2 will be delayed by the attack time of channel 1.

4. Triggered ASR with control upon sustain time: in the same order of ideas, trigger channel 1 in trigger mode with symmetry fully counterclockwise, and without any cable inserted into its gate input, put channel 2 in gate mode. While channel 1 is decaying, channel 2's signal will rise and hold its sustain phase. When channel 1 decay is over, channel 2 will finally go into its decay phase.

5. ADSR style envelopes: use channel 2 in trigger mode and channel 3 in gate mode, then send the same gate signal in both inputs. Set channel 3 amplitude to a lower level than channel 2. Channel 2 settings will define the attack and decay, set channel 3 symmetry in order to have a longer attack time than channel 2. Channel 3 decay defines the release time of the envelope. Do not insert anything on channel 2 output, channel 3 output will deliver the maximum amplitude of both envelopes providing an ADSR like envelope.

6. Ratcheting envelope: set channel 1 in trigger mode and channel 2 in gated loop mode with a shorter time parameter. Send a trigger into the first input, with nothing inserted into the second input and listen to the second output. While the first channel is decaying the second one will repeat its envelope. Controlling channel 2 amplitude with channel 1 envelope leads to interesting results too!

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7. Triple peak envelope: set channel 1 symmetry fully counterclockwise and time to 11 o'clock, channel 2 symmetry at noon and time at noon, and channel 3 symmetry at 2 o'clock and time at 2 o'clock. With every channel in trigger mode, send a trigger into the first input while using the third output. Result is an original modulation source shaped as a multi peak envelope. Setting different levels on each channel will also give more dynamic and original results.

8. Pseudo random LFOs: Set the two first channels in loop mode and insert a patch cable into the channel 2 input to break the normalization. Send channel 1 output into channel 2 time CV input and channel 2 output into channel 1 time CV input while multing the two outputs. Use both outputs as modulation sources. Attenuating the signal sent to the time CV inputs will lead to more subtle results.

Specifications

Size	CV inputs
8 HP	-5 to +5V
Depth	Gate inputs
21 mm	0 to +5V
Current Draw	CV outputs
40 mA @ +12V	0 to +8V
8 mA @ -12V	Full cycle enveloppe timing
	2.5 ms to 15 sec.
	Minimum attack-decay time
	200 µSec