



PARTICLES

RATE  
RST P

16

SHIFT INPUTS

NO TRIPL

FUNC

MUTE

GATER

BYPASS

PROB

ABSORB

OUT1

OUT2

OUT3

OUT4

TRIG1

TRIG2

TRIG3

TRIG4

RATE

SHIFT

CLK IN

RESET

ABSORB

PROB

GATER

RAND

Patching Panda





## INTRODUCTION:

Particles, is 4 channels of trigger modulation, capable of mathematically varying and manipulating your patterns with a combination of fun features to play with. It can evolve your rhythmic idea into more complex and groovy patterns which are difficult to achieve without music knowledge.

You can create your algorithms from the rhythmic tools provided to be able to change the patterns instantaneously in many ways without worrying to sacrifice the original idea.

You can shift and scramble the outputs, you can repeat the triggers with different time signatures to transform the grooves, mute in different ways, disappear by probability trigger inputs, disappear by probability repetitions, use sequential switching to shift randomly with a different kind of resetting, bypass each channel and set it individually the amount of each feature per channel when feeding external CV.

The idea of Particles, was designed to provide features for building complex breaks, grooves, organic-evolving percussion sounds, different options for arpeggios, and even bass line grooves, the limits are decided by you.

## INSTALLATION:

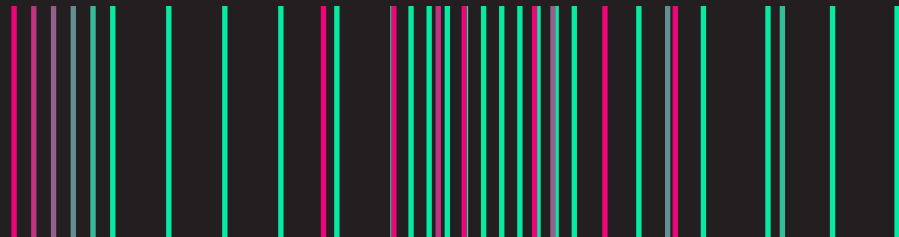
- \* Disconnect your synth from the power source.
- \* Double check polarity from the ribbon cable, unfortunately if you damage the module by powering in the wrong direction it will not be covered by the warranty.
- \* After connecting the module check again you have connected the right way, the red line must be on the -12V





## INSTRUCTIONS

- |                                    |  |
|------------------------------------|--|
| <b>A</b> Trigger input 1           | <b>N</b> Triplets On/Off toggling          |
| <b>B</b> Trigger input 2           | <b>O</b> Shifting inputs manual adjustment |
| <b>C</b> Trigger input 3           | <b>P</b> Shifting inputs CV adjustment     |
| <b>D</b> Trigger input 4           | <b>Q</b> Encoder feature adjustment        |
| <b>E</b> Trigger output 1          | <b>R</b> Repetitions CV adjustment         |
| <b>F</b> Trigger output 2          | <b>S</b> Absorb CV adjustment              |
| <b>G</b> Trigger output 3          | <b>T</b> Probability CV adjustment         |
| <b>H</b> Trigger output 4          | <b>U</b> Gater CV adjustment               |
| <b>I</b> Clock input               | <b>V</b> Random CV output                  |
| <b>J</b> Reset trigger input       | <b>W</b> Channel 1 BTN feature adj         |
| <b>K</b> Parameters adjusting out1 | <b>X</b> Channel 2 BTN feature adj         |
| <b>L</b> Parameters adjusting out2 | <b>Y</b> Channel 3 BTN feature adj         |
| <b>M</b> Parameters adjusting out3 | <b>Z</b> Channel 4 BTN feature adj         |
| <b>N</b> Parameters adjusting out4 | <b>C</b> Function and exit BTN             |



1. Default mode: To make calculations, Particles needs 4 triggers and a clock. In default mode, you can set the number of global repetitions by rotating the encoder. The display will show the number of repetitions you have selected. You can also select the distribution of the repetitions by pressing the encoder. The default setting is 16 clocks, which is also known as C16.

Set the amount of Global repetitions by rotating the encoder or sending CV to RATE input.  
Rate=1, 2, 3, 4, 6, 8, 12, 16, 24, 48, 64, 96, 128

The length of the repetitions distribution can be adjusted.  
By default, C16 is selected, which means that the repetitions will be distributed in 16 clocks (x/16).  
Changing the distribution can create interesting grooves. The available options are x/16, x/24, x/32, x/40, x/48, x/56, and x/64

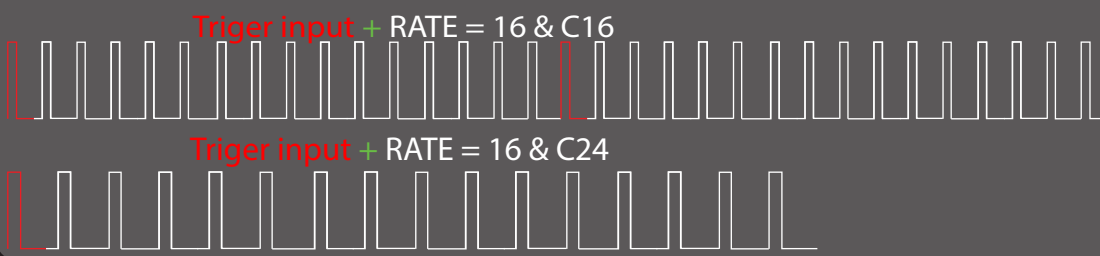
The sliders work together with the encoder and CV input. They will reach the maximum value that is shown on the screen. Each slider can limit the amount of repetitions, even if the CV or encoder goes further. The sliders will remember the last value that was adjusted until it is moved back. This is very useful when you send an LFO to the RATE input and you want each channel to reach a maximum number of repetitions.

Pressing the buttons toggles Triplets ON/OFF, for musical results select “no triplets/ON”

Pressing the buttons in default menu toggles Mute ON/OFFthe channel selected

Random output will deliver random voltages from 0-10V

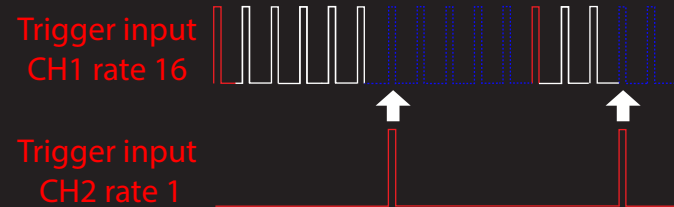
By selecting odd numbers for the bar length and adjusting the repetitions with the sliders, you can create interesting polyrhythms.



You can manually or with CV shift the inputs to outs selected.

- Original, not shifting
- ▶1 Shift > 1 time = in1 to out2, in2 to out3, etc.
- ▶2 Shift > 2 times = in1 to out3, in2 to out4, etc.
- ▶3 Shift > 3 times = in1 to out4, in2 to out1, etc.
- ▶▶ Shift sequenced forward by clock input.
- ◻ Shift sequenced randomly by clock input.

Pressing and holding the FUNC button while simultaneously pressing the encoder directs you to the RESET PULSES menu. With the Channels buttons activated, trigger inputs possess the capability to interrupt (choke) the repetition pulses of other Channels if their respective buttons are also activated



In the given example, the triggers from Channel 2 disrupt the Repetition Pulses from Channel 1.





## 2. GATER mode

The GATER feature uses clock divisions from the clock input to mute the triggers per channel. You can enable or disable GATER on each channel by pressing its button.

When GATER is OFF, the button LED will blink briefly every 16 steps of the clock. This blinking also shows you the phase of the clock divisions. When GATER is ON, the button LED will toggle on and off, clocked by the divisions you have selected.

When the clock is high, MUTE toggles ON. The button LED from each channel will toggle ON.

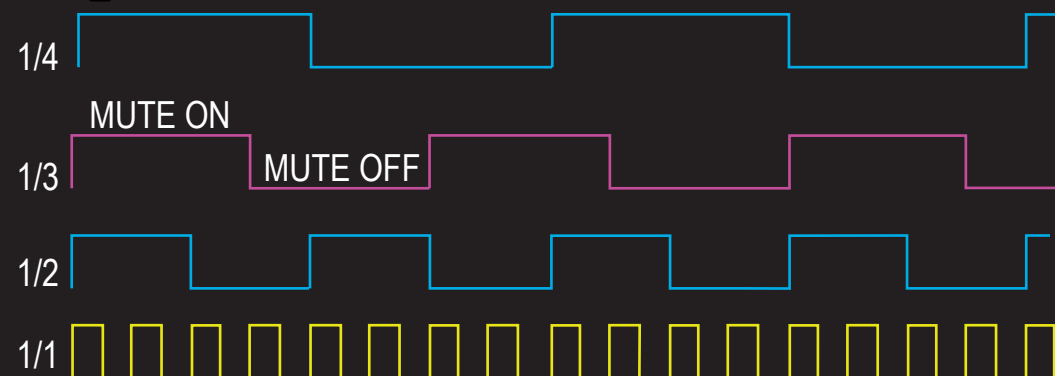
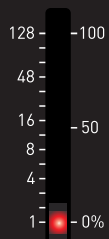
When the clock is low, MUTE toggles OFF. The button LED from each channel will toggle OFF.

0.02

You can use the encoder or CV to set the maximum amount of divisions. The available divisions are 1/1, 1/2, 1/3, 1/4, 1/6, 1/8, 1/12, 1/16, 1/24, 1/32, 1/48, 1/64, 1/96, and 1/128.

The sliders can be used to adjust and limit the amount of divisions that are set on the screen.

The button LED will show the divisions when the sliders are moved.



## 3. BYPASS:

Pressing the FUNCTION button and the BYPASS button will take you to the BYPASS menu. The BYPASS button toggles BYPASS on and off.

When the button is pressed, it will wait for the next trigger to toggle.

## 4. PROBABILITY:

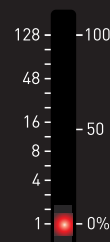


The Probability feature removes triggers randomly, based on the probability that you set. You can set the probability with the sliders, encoder, or CV.

P.0.0

To access the Probability menu, press the FUNCTION button and the PROB button. The global probability is displayed on the screen.

The sliders limit the probability for each channel. This means that you can set different patterns for each channel.



You can also lock the probability for each channel to 100%.

This means that the probability for that channel will not be affected by the global probability or the sliders. The button LED will be on when the probability is locked to 100%.

When the probability is not locked to 100%, the button LED will blink to show the percentage that is limited. A slow blink means a low percentage, and a fast blink means a high percentage.

The slider values are kept until you move them back.

The algorithm in Probability is meant to have more organic results.





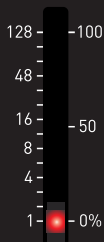
## 5. ABSORB:

The Absorb feature removes triggers randomly, except for the original trigger input, based on the probability that you set. You can set the probability with the sliders, encoder, or CV.

A.0.0

To access the Absorb menu, press the FUNCTION button and the Absorb button. The global probability is displayed on the screen.

The sliders limit the probability for each channel. This means that you can set different patterns for each channel.



You can also lock the probability for each channel to 100%. This means that the probability for that channel will not be affected by the global probability or the sliders. The button LED will be on when the probability is locked to 100%.

When the probability is not locked to 100%, the button LED will blink to show the percentage that is limited. A slow blink means a low percentage, and a fast blink means a high percentage. The slider values are kept until you move them back.

Pressing encoder for 3 seconds will save the adjustments to the SD card.

Pressing FUNC btn for 3 seconds will reset all values adjusted

## PROBABILITY AND ABSORB EXAMPLE

16 REPETITIONS

PROBABILITY 50%



First trigger is also disappearing

ABSORB 50%



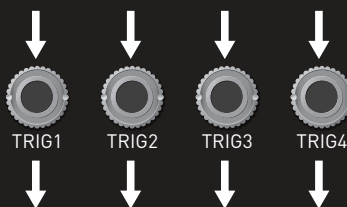
First trigger has not disappeared





CLK IN

## EXTERNAL TRIGGERS



# Pattern algorithm design flow



SHIFT INPUTS

## SHIFT INPUTS



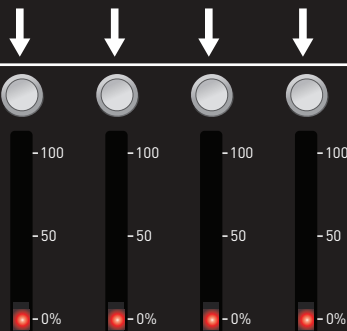
RESET

When shifting the inputs in sequence mode it can be reset to the original positions when trigger is received.

## PROBABILITY

P.0.0

The encoder or CV set the global amount of triggers to be removed one by one by probability



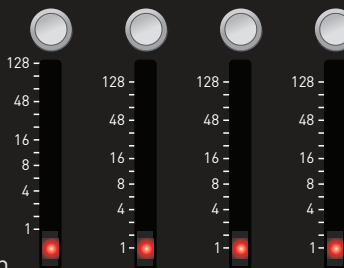
Toggle probability to lock 100% per channel

The sliders limits the amount of triggers to be removed one by one by probability per channel, when moving the slider the buttons blinks showing the amount of probability

## GROOVE PATTERN DESIGNER

REPETITIONS .16  
DISTRIBUTION C.16

The encoder or CV can set the Global amount of repetitions  
Playing with distribution values can find different patterns to work with



Mute output channels

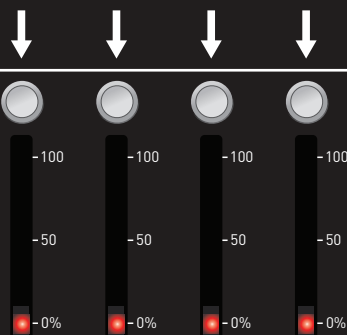
The sliders limits the amount of repetitions per channel.

NO TRIPL For musical patterns triplets could be disabled.

## ABSORB

A.0.0

Encoder and CV set the global amount for the repetitions to disappear by probability



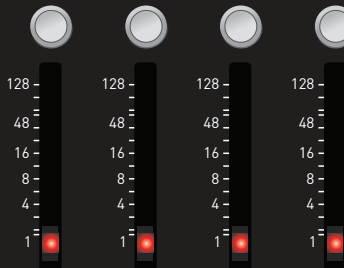
Toggle Absorb to lock 100% of probability per channel

The sliders limits the maximum amount probability for the repetitionsto to disappear by probability

## GATER

G.0.2

Encoder and CV set the global maximum speed of the clock to rythmic muting the channels



Toggle ON/OFF GATER per channel

The sliders sets the clock rate for each channel to mute their outputs, the btns blinks showing the clock rate

## ALGORITHM OUT

