

granular delay / pitch shifter

Particle is a granular delay. It chops up the incoming audio into short segments called grains, which are 15-250 milliseconds long. The grains are played back at different pitches or out of order. Eight different modes provide a vast array of effects, from reverse delay to glitched-out stutters and subatomic pitch shifting. Particle is a true bypass pedal with 100% analog dry signal and 24 bit converters

All Red Panda pedals require a 9V DC center negative, regulated power supply (Boss style). Using an incorrect power supply may damage your pedal.

Warning

Particle chops sound into small “grains” - short impulsive sounds. Because they are short, they tend to sound quieter than they actually are.

Controls

blend

Wet/dry mix.

chop

Controls the grain size from 7:00-12:00. Above 12:00, sets freeze threshold.

delay/pitch

Controls the delay time or pitch shift range (depending on mode). Pitch shift range is +/- 1 octave, with no pitch shift at 12:00. Delay time range is from 0 to up to 900 ms (depending on mode).

param

Controls a mode-specific parameter

feedback

Audio feedback (repeats).

mode

See next page for a description of modes.

expr

Selects delay/pitch (up) or param (down) as the expression pedal destination

LEDs

The upper LED blinks red when clipping occurs.

The lower LED is blue when the effect is engaged.

Expression Pedals

Plug an expression pedal into the EXPR jack to control the pitch/delay or param knobs. Any expression pedal with a 10k-50k ohm linear pot will work. For example, the Roland EV-5, Moog EP-2, M-Audio EX-P, or Mission Engineering EP-1. When an expression pedal is used, the knob sets the maximum value. If your expression pedal has a minimum value knob, you can control the knob over a specific range of values.

Warranty

This product is warranted against defects in materials or workmanship for one (1) year from date of original purchase. It does not cover damages or wear resulting from accident, misuse, abuse, or unauthorized adjustment and/or repair. Should this product require service (or replacement at our option) while under warranty, please contact info@redpandalab.com.

Example Settings

These are just starting points. Please explore.

| | |
|--|--|
| Fluttery Chorus mode: delay + rnd blend: 11:00 chop: 12:00 delay: 8:30 param: 8:30 feedback: 2:00 | Broken Spring mode: delay + dens blend: 2:00 chop: 8:00 delay: 8:00 (same as chop) param: 2:30 feedback: 5:00 |
| Shimmer Repeats mode: pitch + dense blend: 10:00 chop: 10:00 pitch: 2:00 param: 3:00 feedback: 3:00 | Robot mode: delay + lfo blend: 5:00 chop: 9:00 delay: 10:00 param: 10:00 feedback: 7:00 |
| Reverse Delay mode: delay + rev blend: adjust to taste chop: 11:00 (try 8:00 for drum loops) delay: adjust to taste param: 7:00 feedback: adjust to taste | Ghostly mode: pitch + dtune blend: 12:00 chop: 7:00 delay: 11:00 param: 10:30 feedback: 7:00 |

| | | | |
|-------|------|-------------|---------------|
| mode | | pitch/delay | param |
| delay | dens | delay time | grain density |

The delay knob sets the delay time (max. 500 ms). The param knob controls the density of grains, breaking the incoming audio down into blips at lower settings. The chop and param knobs interact in this mode. Get VOSIM-like effects by setting the chop and delay knobs equal with feedback cranked up.

| | | | |
|-------|-----|------------------|-----------|
| delay | lfo | delay time range | LFO speed |
|-------|-----|------------------|-----------|

Steps through the delay buffer at a frequency set by the parameter knob. The delay knob sets the maximum delay. Audio plays at normal speed with the param knob at 12:00. The chop knob controls the stair-stepping of the delay time. Results can be similar to subtle phasing with short delay times, or glitchy robot sounds with longer delays.

| | | | |
|-------|-----|------------|-----------------------|
| delay | rev | delay time | direction probability |
|-------|-----|------------|-----------------------|

The chop knob sets the grain size, but also imposes a minimum delay. Setting the grain size to the minimum will give the most delay adjustment range. Longer grains reduce artifacts, especially for sustained sounds.

The param knob controls the probability of each grain playing forward or reverse. Fully counterclockwise gives a reverse delay. At 12:00, grains are equally likely to play forward and reverse.

| | | | |
|-------|-------|------------|-------------------|
| delay | pitch | delay time | pitch shift range |
|-------|-------|------------|-------------------|

The delay signal is randomly pitch shifted up or down by the amount set by the param knob. The delay knob sets the delay time. The chop knob controls how often the pitch changes.

| | | | |
|-------|-----|-----------------|--------------------|
| delay | rnd | max. delay time | time randomization |
|-------|-----|-----------------|--------------------|

The delay knob sets the maximum delay time. The param knob sets the randomization range. The chop knob controls how often the delay time is changed (size of the audio slices). Short delays create a chorusing sound. Use longer delays for beat slicing effects.

| | | | |
|-------|-------|-------------|--------------|
| pitch | dtune | pitch shift | detune range |
|-------|-------|-------------|--------------|

The pitch knob sets +/- 1 octave pitch shift. The param knob controls the amount of random detuning around the set pitch. Each grain is detuned by a random amount, so the chop knob controls how smooth or stepped the effect is.

| | | | |
|-------|-----|-------------------|-----------|
| pitch | lfo | pitch shift range | LFO speed |
|-------|-----|-------------------|-----------|

The pitch knob controls the range of pitch shift, from one octave down to one octave up. Within that range, the pitch ramps at a frequency set by the param knob. The pitch changes with each new grain, so the chop knob controls how smooth or stepped the effect is.

| | | | |
|-------|------|-------------|---------------|
| pitch | dens | pitch shift | grain density |
|-------|------|-------------|---------------|

The pitch knob sets +/- 1 octave pitch shift. The param knob controls the density of grains, breaking the incoming audio down into blips at lower settings. The chop and param knobs interact in this mode.

Freeze (All Modes)

In freeze mode, the delay buffer is recycled instead of taking live input. When the chop knob is above 12:00, it sets the threshold for capturing live input. The input signal plays through when the input exceeds the threshold. When the input level drops below the threshold, it starts reading from the delay buffer instead. This allows you to catch the beginning of each note and repeat it. When the chop knob is fully clockwise (5:00), it continuously loops. Lower thresholds can create drones in between notes. Longer delay times give chopped up sound-on-sound effects.

There may be a slight click or tremolo effect on signals that decay quickly. For more reliable triggering, put a compressor in front of the Particle.