

# PERCSTATION FOR VOLTAGE MODULAR

## VIRTUAL ANALOG PERCUSSION WORKSTATION

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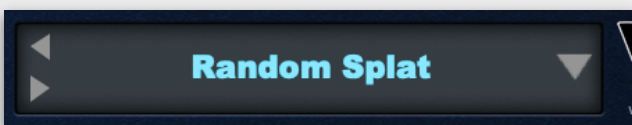
We like to think PERCSTATION isn't your typical analog drum machine emulation. That's why we call it a "percussion workstation". Sure, it can do regular drum machine sounds, but we hope that PERCSTATION inspires you to take your rhythmic ideas into new sonic territory!

We've tried to keep PERCSTATION easy and fun to use, but please do refer to this user guide from time to time in order to get the best from the instrument.

Main features:

- Four virtual analog drum synth voices, each with two variable shape oscillators, two noise sources and variable mode filter with multiple drive options
- Four track 16 step x 16 pattern (or 256 step) grid-based sequencer with variable probability per step, time signature support, swing and pattern cycle mode
- Two variable shape step-based modulation sources per voice with 20 possible modulation destinations
- Built-in delay, two reverbs, voice effects send matrix, compressor, limiter and 4-channel mixer
- Internal or external sync, host transport, voice output routing, voice trigger in / out
- User preset support for voice, kit, sequence and instrument setups
- Growing collection of voice and instrument factory presets

### INSTRUMENT PRESETS



In the main, large presets window a drop down menu can be accessed via the down arrow button. The menu has options to initialise, or load and save presets. You can also navigate through user or factory presets with the next / prev right / left arrow buttons. To edit a preset name, double click on the text in the window. By default, this name will be used when saving your own presets to files (saved to Users/Your Name/Documents/Voltage Modular/PERCSTATION/User Presets)

Presets can be saved for:

- **Instrument** - basically everything, files end with .PERCSTATION
- **Kit** - all voices plus effects, files end with .PERCSTATION-KIT
- **Sequence** - sequence only, files end with .PERCSTATION-SEQ

## VOICES



At the sonic core of PERCSTATION are four virtual analog voices comprising two variable shape oscillators and two noise sources. Each voice has a dedicated filter and two modulation sources.

Each voice has a preset window for loading, saving and browsing user and factory presets via the down arrow dropdown menu. To edit a preset name when creating your own sounds, double click the text in the preset window. Voice preset files end with .PERCSTATION-VOC

To quickly cycle through user or factory presets and hear the sound, click the right arrow button. You can also trigger the sound by clicking on the voice number box - useful when you're designing your own sounds.

The AB routing switch allows you to re-direct the voice to the dedicated A or B outputs. This will also remove the voice from the stereo L/R outputs. By default, all voices go to the stereo outputs and the AB button will be unlit.

Controls for the voice sound sources:

- **OSC1/2** - sets the mix level of oscillator 1 or 2
- **SHAPE** - changes the shape of oscillator 1 or 2, from saw, triangle, sine, to variable pulse width or a mix between
- **TUNE** - changes the pitch of oscillator 1 or 2
- **DECAY** - sets the decay time of oscillator 1 or 2
- **WHITE / DECAY** - sets the mix level and decay time of a white noise source
- **PINK / DECAY** - sets the mix level and decay time of a pink noise source

Controls for the voice filter:

- **TYPE** - selects the filter type from lowpass, bandpass and highpass with two and four pole options for each
- **CUTOFF** - sets the cutoff frequency for the filter
- **ENV** - when this button is on, an automatic filter envelope is applied based on the average decay time for the sound sources in use
- **RES** - sets the resonance of the filter
- **DRIVE** - sets the amount of drive applied at the filter stage according to the drive type setting above the control

## VOICE MODULATION



Each voice has two dedicated voice modulation sources. Instead of a traditional LFO, voice modulation occurs on a per-step basis with the cycle length specified in number of steps. For example, a triangle mod shape with a duration of 8 steps will increase the modulation value each step for 4 steps, then fall for 4 steps, then repeat. Through creative use of the modulation section, interesting rhythmic effects can be obtained giving the impression that there's much more going on than a pattern using 4 static voices.

Voice modulation sources can be toggled with the numbered buttons, 1 and 2 for voice 1, 3 and 4 for voice 2, and so on.

Modulation controls are:

- **STEPS** - sets the cycle length in steps
- **SHAPE** - set the shape of the modulation cycle
- **DEPTH** - sets the modulation depth
- **DEST** - sets the modulation destination

Available modulation destinations are:

- **OFF** - no modulation
- **OSC1** - oscillator 1 mix level
- **SHP1** - oscillator 1 shape
- **TUN1** - oscillator 1 tune
- **DCY1** - oscillator 1 decay time
- **OSC2** - oscillator 2 mix level
- **SHP2** - oscillator 2 shape
- **TUN2** - oscillator 2 tune
- **DCY2** - oscillator 2 decay time
- **WNOS** - white noise mix level
- **DCYW** - white noise decay time
- **PNOS** - pink noise mix level
- **DCYP** - pink noise decay time
- **FCUT** - filter cut-off frequency
- **FRES** - filter resonance
- **FDRV** - filter drive
- **SNDD** - delay effect send level
- **SND1** - reverb 1 effect send level
- **SND2** - reverb 2 effect send level
- **PAN** - voice pan
- **VOL** - voice volume

## SEQUENCER



The sequencer is a traditional four lane 16 step pattern sequencer, each voice having its own dedicate lane or track. An additional lane allows accents to be added for certain steps and the accent is applied to all voices for that step according to the level of the ACC control.

### Step Editing

Unlike most drum machine pattern editors, steps are not simply set to be on or off. Instead, six possible levels of probability are available corresponding to the numbers of a dice. Lowest probability is one, and the highest is six. At a probability of six, the step will always play.

Click the step to change the step probability, or perform quick changes by dragging up or down on the step as you would a vertical slider or switch.

Quite often, reducing the probability of a few steps in your pattern can create enough variation with a single pattern in looped playback, that you don't need to add multiple patterns with subtle differences as you would with a traditional drum machine.

### Timing

You can change the time signature for a bar by clicking on the displays for **COUNT** and **LENGTH**. When a bar is complete, the sequencer will reset to step 1. A **BAR** and **BEAT** counter will update during play.

**STEPS** varies the maximum number of steps.

**TEMPO** sets the tempo of the internal clock.

**SWING** selects pre-defined swing percentages which offsets even numbered steps to create a swing or shuffle feel to the pattern.

The **PLAY / STOP** button toggles playback.

**INTRO** can be used to set an intro duration in bars. The bar counter will display a negative count during the intro. This can also be useful when recording into a DAW if you're having trouble capturing the very first step of your sequence.

## Patterns & Cycle Mode

Use the PATTERN arrow buttons to select from 16 available pattern slots, or click on the pattern number display for a menu to select, initialise, clear, copy or paste patterns.

If you're only using one pattern in your preset, set the pattern and cycle buttons to **LOOP** and the currently selected pattern will loop continuously when you hit play.

If you want to cycle through your patterns, select the pattern button to **CYCLE**. In cycle mode, the sequencer will repeat each pattern, starting from pattern 1, for the number of bars in the display. You can change the number of bars via a menu by clicking the display. In the CYCLE section, set the total length of the cycle in bars, and whether you want to **LOOP** or **STOP** after a cycle.

If you want the current pattern to stop after a certain number of bars, set the pattern button to **LOOP** and the cycle button to **STOP**.

For example:

PATTERN LOOP 2, CYCLE STOP 16 - will play the current pattern for 16 bars and then stop.

PATTERN CYCLE 2, CYCLE LOOP 8 - will play patterns 1 to 4 for 2 bars each as the cycle length is 8 bars, then repeat.

PATTERN CYCLE 1, CYCLE LOOP 16 - will play all patterns 1 to 16 for one bar each. This is equivalent to having a 256 step sequencer.

PATTERN CYCLE 4, CYCLE STOP 8 - will play patterns 1 and 2 for 4 bars each, then stop. This is useful for playback in DAWs when you want to record sections of a certain length and need the pattern to stop gracefully, with your recording capturing voice decay and effects trails etc., when the sequencer stops.



## EFFECTS & MIXER



PERCSTATION comes with built-in effects that have been designed to compliment typical percussion sounds.

**DELAY** is a dual ping-pong analog-flavoured delay with tempo sync and variable ratio. Note lengths and ratios can be selected by clicking above the controls.

Two **REVERB** effects are provided so could set one to a small bright room and the other to a large dark hall type effect for example.

The **FX SEND** matrix works like a traditional mixer with effects loops, allowing you to send a variable amount of each voice's dry signal to each effect.

As well as controlling the mix levels for each voice and left-to-right pan position, the mixer has buttons to mute or enable each channel.

Finally, a master output section includes a compressor and limiter both controlled with a simple, single control. Turn them up for more effect, or toggle either off via the buttons. LEDs indicate when the effects are "working" on the input signal, i.e. how close you are to the compressor threshold and when the limiter threshold has been hit.

## INS & OUTS



PERCSTATION has various connectivity options for when you're using it with other modules or inside a DAW recording session.

Input jacks are colour coded white, and output jacks are black.

When using a DAW or sharing a global tempo with other modules, connect Voltage Modular's TRANSPORT SYNC OUT jack to the **SYNC IN** jack.

When the **SYNC IN** jack is used, PERCSTATION is using an external clock source and changes to the **TEMPO** control won't take effect.

The tempo control beat counter will flash red for external, and blue for internal clock.

You can also use the **SYNC OUT** jack to send a clock pulse to another module. This will work for both internal and external clock.

Please note that the sync clock is 96 PPQ - the same as Voltage Modular.

The **PLAY** and **STOP** jacks should be connected to Voltage Modular's TRANSPORT PLAY and STOP outputs if you want your DAW or host to control the PERCSTATION sequencer playback.

Here's a typical connection setup:



The **PTN** input jack can be used as a trigger for next or previous pattern selection. Send +1V or more for next, and -1V or less for previous.

The **STEP** output jack will send a trigger on each new step. This can be used as a 1/16th note trigger for other sequencers etc., for example.

The voice **TRIG IN / OUT** section receives and sends triggers for each of the four voices plus accents. This allows PERCSTATION to be used either as a percussion sound module for other sequencer modules, or for the sequencer to trigger external drum and percussion sound sources.

**OUTPUT A/B** are audio outputs for any voices that are routed to output A or B via the A/B routing switch. These outputs are mono and do not include effects or stereo pan.

**OUTPUT L/R** are the main stereo audio outputs including all effects and pan positions set by the mixer.

### **ACKNOWLEDGEMENTS**

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<https://www.facebook.com/JDsoundsets>