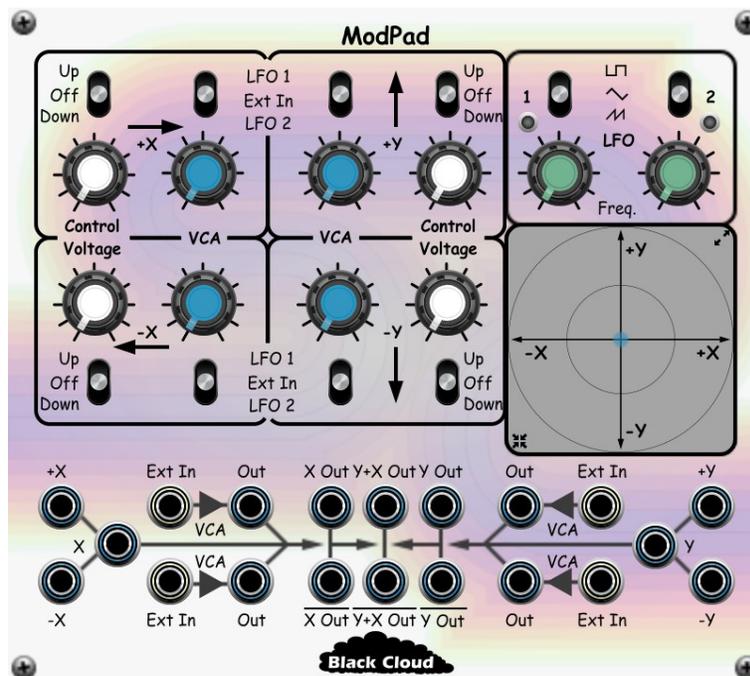


## Introduction

**ModPad** is a performance oriented touchpad controlled modulation source after the vintage Ocatve Electronics *CATSTICK* hardware controller.

With its touchpad, two LFOs, four internal VCAs and four CV sources, you can achieve a different modulation type and/or depth for touchpad gestures in each direction; right, left, up, and down. Each touchpad direction has a separate Control Voltage and VCA section with "knob per function" controls in each section.



The selection of outputs provides a variety of direct, mixed and/or modulated control voltages for use with other modules in your rack:

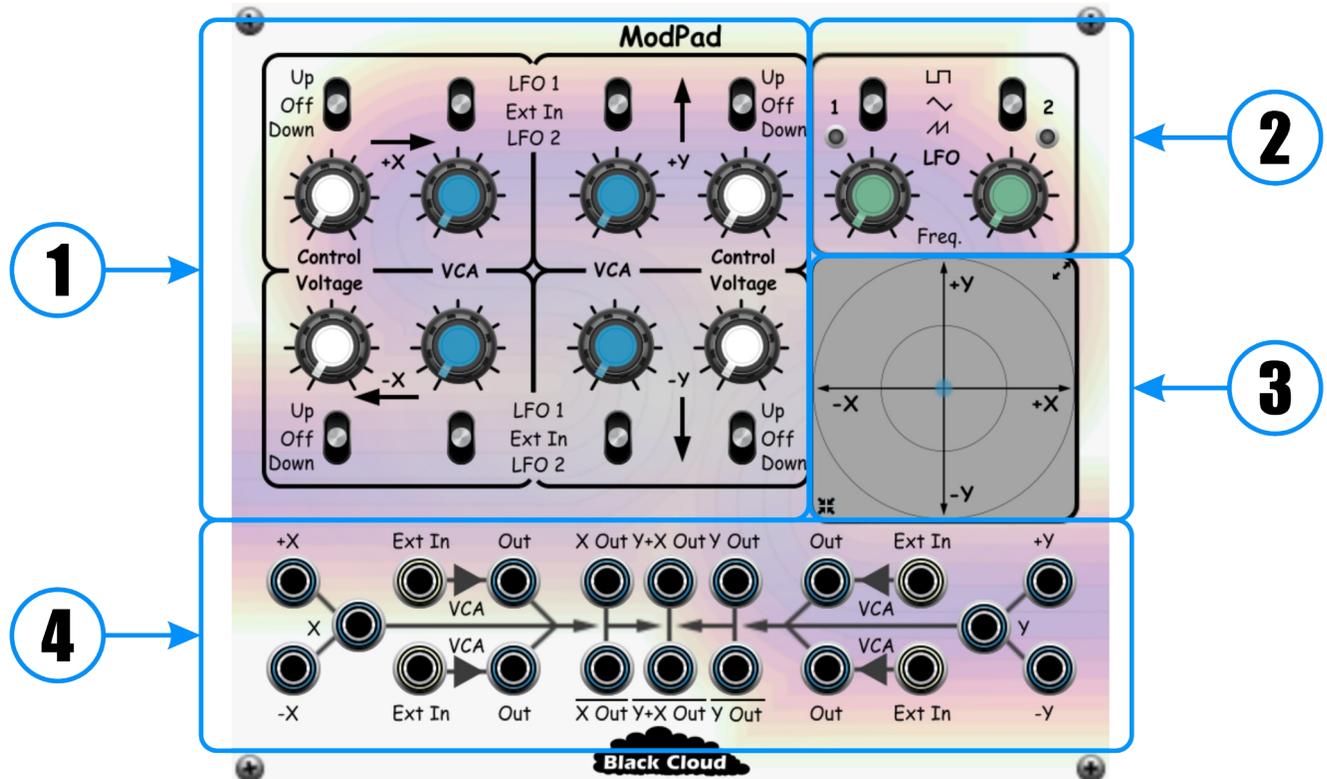
- Individual CV outputs for each touchpad direction and both axis.
- Each VCA has separate input and output jacks and can be used internally or as a freestanding VCA.
- X and Y outputs that sum the respective axis and VCA outputs.
- A summed output that include both X and Y values.
- Inverted X, Y, and XY outputs.

The touchpad can be expanded to a larger size for more precise control, and auto-centering (on mouse release) can be toggled on and off.

Optional X and Y position knobs, suitable for use with Cherry Audio's Remote Control module are also available.

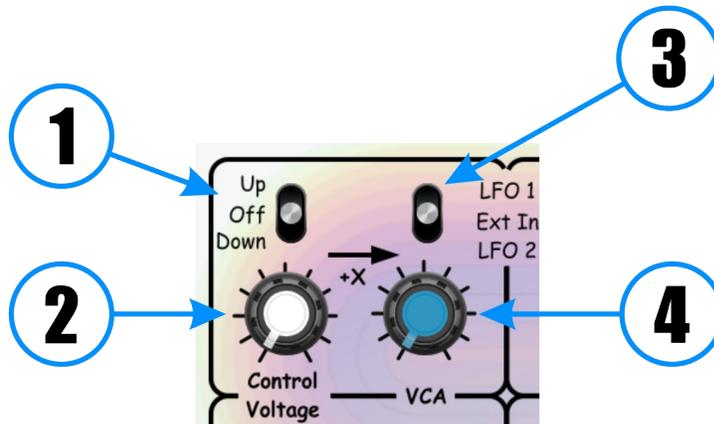
For a brief description of the original *CATSTICK*, see <https://www.vintagesynth.com/OctavePlateau/Catstick>.

## Knobs, Buttons and Sliders



<p><b>1 Axis Controls</b> Independently configurable modulation sources and levels for each axis on the touchpad.</p>	<p><b>2 LFO Controls</b> Shape and Rate controls for the two internal LFOs.</p>
<p><b>3 Touchpad Surface</b> Click and drag over the touchpad surface to vary the modulation outputs.</p>	<p><b>4 Output Section</b> Various modulation outputs. Also includes external inputs for the axis VCAs.</p>

## Axis Controls



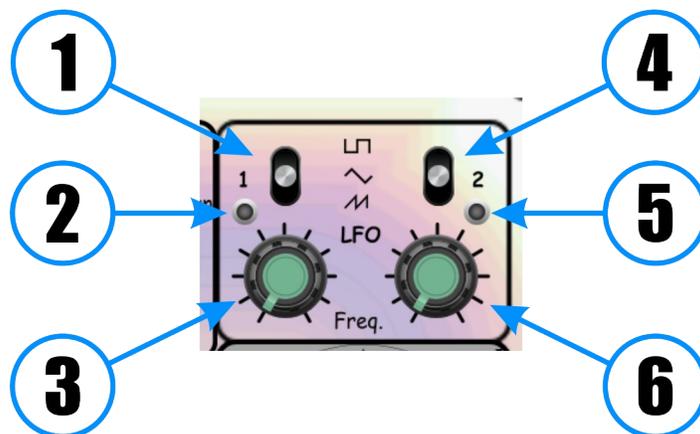
<p><b>1</b></p>	<p><b>CV Mode</b> Sets the CV mode for the axis:</p> <ul style="list-style-type: none"> <li>• <i>Up</i>: CV varies from 0V to maximum level (2).</li> <li>• <i>Off</i>: No CV generated (Default).</li> <li>• <i>Down</i>: CV varies from maximum level (2) to 0V.</li> </ul>	<p><b>2</b></p>	<p><b>CV Amount</b> Sets the maximum CV for the axis. Defaults to 0V.</p>
<p><b>3</b></p>	<p><b>VCA Input Source</b> Selects the input for the axis VCA. Use:</p> <ul style="list-style-type: none"> <li>• <i>LFO 1</i> for VCA input from LFO 1.</li> <li>• <i>Ext In</i> for VCA input from external signal (Default).</li> <li>• <i>LFO 2</i> for VCA input from LFO 2.</li> </ul>	<p><b>4</b></p>	<p><b>VCA Gain</b> Sets the base gain of the axis VCA, from 0 to unity gain. Defaults to unity gain.</p>

The four axis on the touchpad are labeled X+ (right), X- (left), Y+ (up) and Y- (down). Each axis has dedicated axis controls, allowing you to define different modulation levels and or effects for each axis. The amount of modulation generated by each axis is proportional to the cursor position along the axis.

Each axis has basic DC CV that you can configure to vary either upwards or downwards with cursor movement. The maximum level of these DC CVs is set with the *Control Voltage* knobs for each axis.

In addition to this basic DC CV, each axis also has a VCA who's input can be connected to either LFO 1, LFO 2, or an external signal source. You can set the base gain for these VCAs using the *VCA* knobs for each axis.

## LFO Controls

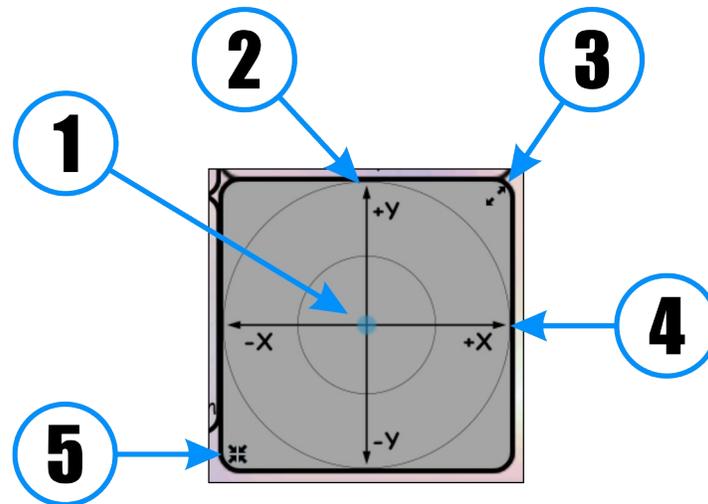


1	<b>LFO 1 Shape</b> Sets the shape of LFO 1 to one of: <ul style="list-style-type: none"> <li>• Square</li> <li>• Triangle</li> <li>• Sawtooth</li> </ul>	4	<b>LFO 2 Shape</b> Sets the shape of LFO 2 to one of: <ul style="list-style-type: none"> <li>• Square</li> <li>• Triangle</li> <li>• Sawtooth</li> </ul>
2	<b>LFO 1 Status LED</b> Brightness proportional to the instantaneous value of LFO 1's output.	5	<b>LFO 2 Status LED</b> Brightness proportional to the instantaneous value of LFO 2's output.
3	<b>LFO 1 Rate</b> Sets the rate of LFO 1.	6	<b>LFO 2 Rate</b> Sets the rate of LFO 2.

You can adjust the range of each LFO from 0.01 Hz to 50.0 Hz,

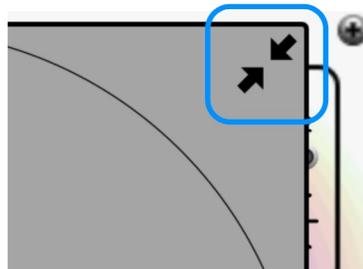
Note that true to the original *CATSTICK*, the frequency of the Sawtooth wave output from the LFOs is twice that of the Square and Triangle wave outputs. You can disable this behavior via the *Module Settings* section of the *Logo Menu* (right click on the Black Cloud Industries logo).

## Touchpad Surface



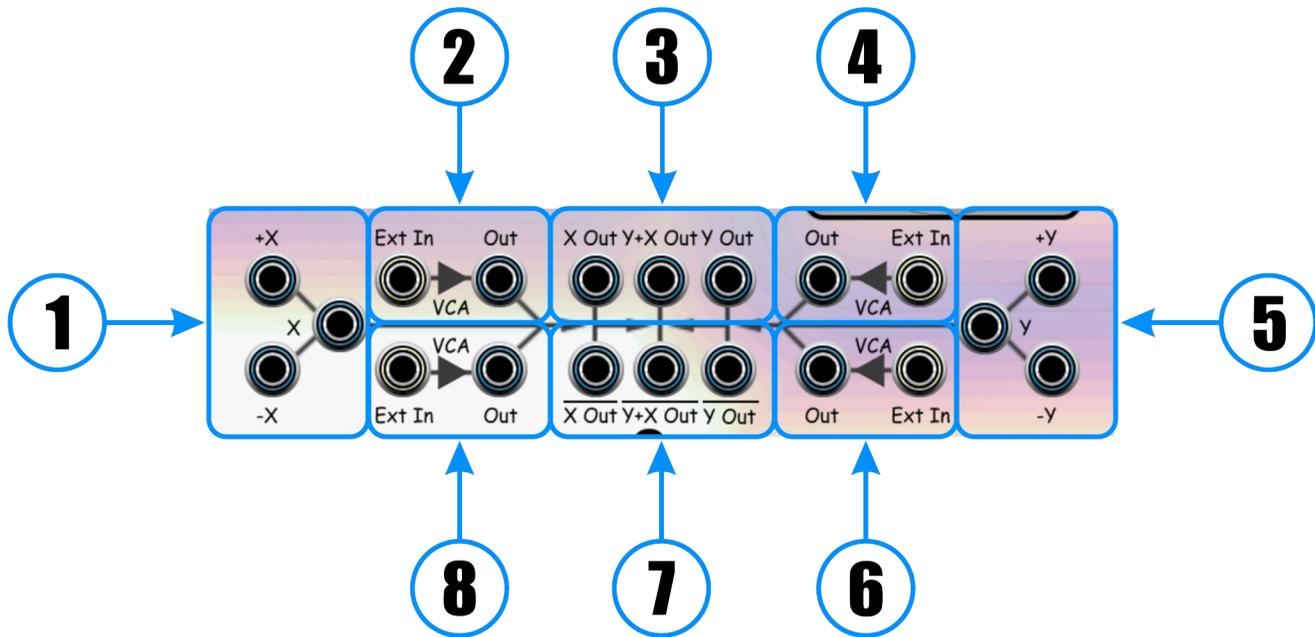
<b>1 Touchpad Cursor</b> Click and drag over the touchpad surface to move the cursor and change modulations.	<b>2 Y Axis</b> The touchpad's Y axis is oriented vertically.
<b>3 Expand Touchpad</b> You can expand the touchpad for increased control sensitivity by clicking this icon.	<b>4 X Axis</b> The touchpad's X axis is oriented horizontally.
<b>5 Self Center Enable/Disable</b> By default, the cursor will remain in where you left it when you release the mouse. You can enable self-centering by clicking this icon.	

You can expand the touchpad to a larger, more navigable size using the *Expand* icon (3). The larger touchpad functions identically to the smaller version, but *Expand* is replaced with a *Contract* icon:



Access to other module controls (other than the Remote Control knobs) is disabled while the touchpad is in expanded mode.

## Output Section

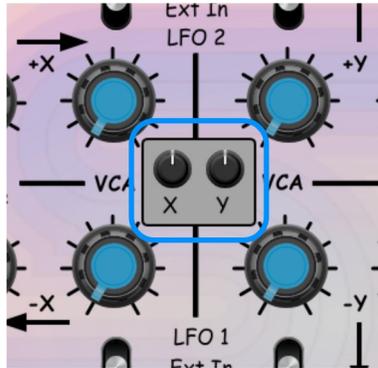


<p><b>1 X Axis CV Outputs</b> Modulation outputs for:</p> <ul style="list-style-type: none"> <li>• X+ axis.</li> <li>• X- axis.</li> <li>• Overall X axis.</li> </ul>	<p><b>2 X+ Axis VCA Input and Output</b> Input to and output from X+ axis VCA. VCA can be used as a freestanding VCA by connecting to it's output.</p>
<p><b>3 Summed X and Y CV Outputs</b> Summed modulation outputs for:</p> <ul style="list-style-type: none"> <li>• X + X VCAs</li> <li>• Y + Y VCAs</li> <li>• (X + X VCAs) + (Y + Y VCAs)</li> </ul>	<p><b>4 Y+ Axis VCA Input and Output</b> Input to and output from Y+ axis VCA. VCA can be used as a freestanding VCA by connecting to it's output.</p>
<p><b>5 Y Axis CV Outputs</b> Modulation outputs for:</p> <ul style="list-style-type: none"> <li>• Y+ axis.</li> <li>• Y- axis.</li> <li>• Overall Y axis.</li> </ul>	<p><b>6 Y- Axis VCA Input and Output</b> Input to and output from Y- axis VCA. VCA can be used as a freestanding VCA by connecting to it's output.</p>
<p><b>7 Inverted Summed X and Y Outputs</b> Inverted versions of the Summed Outputs (3).</p>	<p><b>8 X- Axis VCA Input and Output</b> Input to and output from X- axis VCA. VCA can be used as a freestanding VCA by connecting to it's output.</p>

The summed outputs are clipped to +/- 7.5V.

Connecting to the direct output of any of the axis VCAs will mute them in the summed outputs.

## Remote Control



X and Y position knobs, suitable for use with Cherry Audio's Remote Control module can be displayed using a *Logo Menu* accessible by right clicking on the **Black Cloud Industries** logo. These knobs remain active (to Remote Control) even when not visible, but are ignored if auto-centering is enabled.