

# Gravity Well

## User Manual



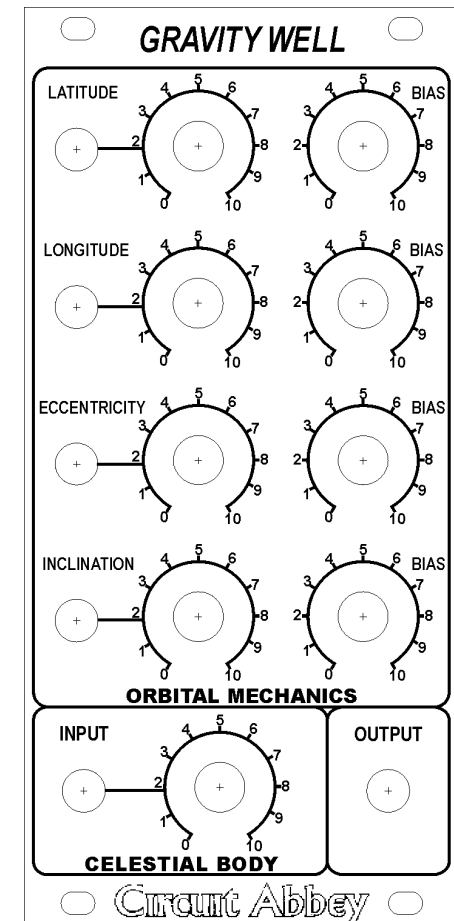
Circuit Abbey

## Gravity Well Description

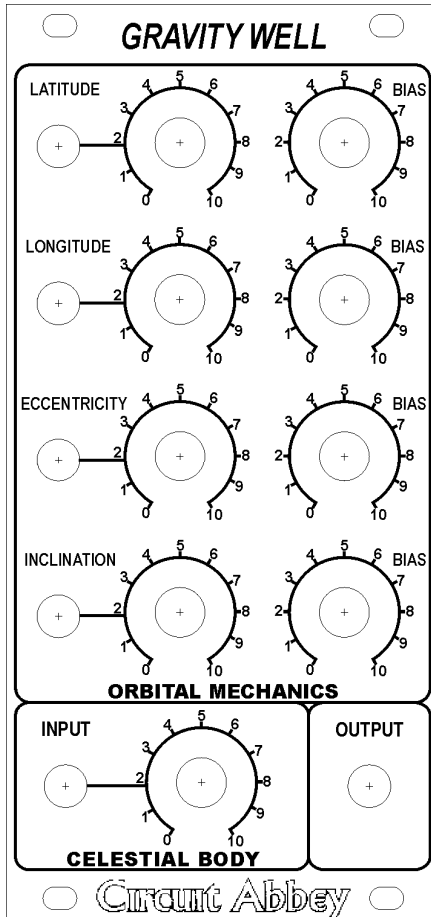
The Gravity Well is a wave modifier using asymmetrical wave warping to create interesting new sounds. Think of the signal in orbit around a heavenly body whose gravity is being changed by the CV inputs. One CV varies the gravity field, another pushes it to one side, the third affects the north-south magnitude, and the fourth the east-west.

The module has one signal input and four CV inputs, all of which have level controls. Each CV channel has a BIAS control for setting initial bias level. It uses +/- 12 volts and a standard 16-pin power connector.

The module works by warping the positive and negative portions of the incoming signal by amounts determined by the CV inputs. The Inclination CV varies both polarities equally. The Eccentricity CV increases the positive warp and decreases the negative warp. The Longitude CV increases the positive warp only, while the Latitude CV increases only the negative warp.



# Front Panel Interface



**Latitude:** Affects the positive half of the input waveform. This input has an attenuator and a bias control for presetting the level.

**Longitude:** Affects the negative half of the waveform. This input has an attenuator and a bias control for presetting the level.

**Eccentricity:** Affects both halves of the waveform. As the Input increases, the positive half of the input waveform warps more, while the negative half warps less. This input has an attenuator and a bias control for presetting the level.

**Inclination:** Affects both halves of the waveform. As the Input increases, both the positive and the negative half warps more. This input has an attenuator and a bias control for presetting the level.

**Input:** This is the main signal input but can take CVs or even DC voltages, and has an attenuator.

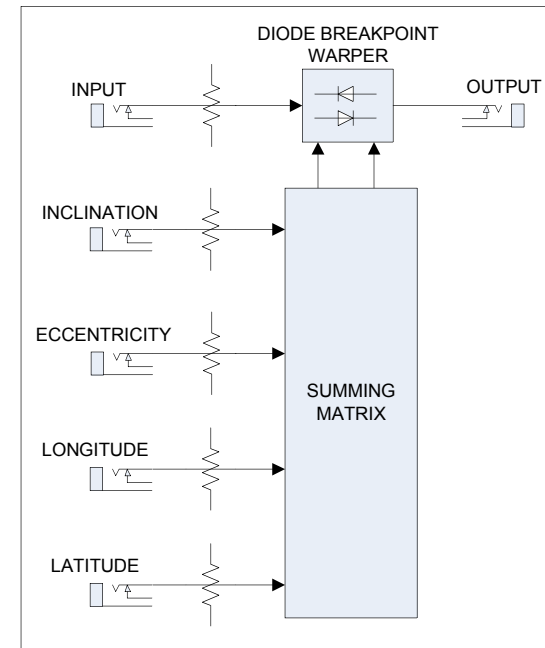
**Output:**

# Operation

The module is DC-coupled throughout. This means virtually any signals can be used at the inputs. In other words, the warpage is not limited to audio signals. It will warp LFOs, ADSRs, even pitch CV's can be warped. Although the block diagram suggests the main signal should go to the **Input** jack, in reality any combination is possible. A VCO output can be routed to the **Inclination** jack and an LFO can be patched to the **Input** jack.

All inputs are bipolar and can therefore accept positive or negative voltage. You can set a static warpage level with a BIAS control and use a negative voltage on an input to decrease the warpage.

The Gravity Well can also pose as a distortion device. The nature of the Diode Breakpoint Warper lends itself to generation distortion effects. Moreover, since the Gravity Well warps the positive and negative halves of the input separately, second and third harmonic distortion can be created in a voltage-controlled manner.



## Examples

This module works best with dynamic inputs. Simply applying a signal and adjusting the bias knobs will not be very interesting. Routing an LFO into a CV will start to show some animation. An ADSR can also be used as a CV. Using a VCO for the signal input and a sub-octave of the VCO for a CV yields some great sounds, as does a second VCO tuned a fifth up or down.

Running the output of the Gravity Well into one input of a ring mod is very interesting, as the harmonics generated by the Gravity Well all get affected by the other input to the ring modulator. Or the output of the ring modulator can be run back into a CV input.

Module Width	12HP (60mm)
Module Depth	30mm
Power Connector	Standard Doepfer 16 pin
Power Requirements	$\pm 12$ Volts at 40mA Max
Input Impedance	20K Ohms
Output	Short circuit protected