



Wavefolder and
Tremolo Sonic
Refractor



COSMODIO INSTRUMENTS Wavefolder and Tremolo Sonic Refractor User Manual

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INTRODUCTION

Deep within the ocean's abyss lie oddities far too strange and beautiful to be imagined. Bioluminescent life blooms, thermal vents radiate, and gelatinous creatures crawl amidst the crushing darkness. It is an environment so otherworldly that it becomes unclear whether we are still on Earth at all. Indeed, the pursuit for extraterrestrial intelligence is increasingly focused on unidentified submerged objects within the sea.

Fearless sonic explorer! Welcome aboard the GRAVITY WELL, your psychedelic submersible, ready to dive deep through fathoms of heretofore undiscovered realms of sound! Gravity Well has three modes of travel:

Tremolo (right side) – A classic effect achieved by modulating the volume of your signal. Most commonly associated with surfy 60s vibes, it can be pushed towards ring modulation or shaped into heavy rhythmic effects.

Wavefolder (left side) – An uncommon effect in which harmonic overtones are added to the input signal by folding the wave over itself, back and forth, to create new pitches and frequencies. The result can be synthy, squishy, splatty, funky, dirty. Extremely responsive to your playing and to your instrument's volume knob.

Sonic Refractor (both) – When both sides of the pedal are active an entirely new type of effect is born. The movement of the tremolo interacts with the wave folder to fluidly fold and unfold sound waves, dynamically warping your signal. Achieve anything from harmonic tremolo to alien phases univibey shifting, to analog synth and sequencer sounds, to pure out-of-this-world science fiction sound effects and textures.

Tremolo controls

SPEED controls the rate of the tremolo and/or refraction.

DEPTH sets the depth of the tremolo and/or refraction.

FLOW determines whether tremolo sits before or after the wavefolder. This dramatically changes the behavior and sound when in Sonic Refractor mode, when both sides are active. Signal flows in the direction of the switch:

- **Left:** tremolo > wave folder
- **Right:** wavefolder > tremolo.

WAVEFORM selects between eight different modulation shapes: sawtooth, ramp, square, triangle, sine, swoop, sample-and-hold, and random movement. Start with triangle or sine for traditional tremolo, sawtooth or square for staccato rhythmic effects, ramp or sample-and-hold for sci-fi vibes, or swoop or random movement for asymmetric

experimentation. Get creative. Depending on other settings these different waveforms can push GRAVITY WELL into completely different aesthetics.

EXP/TAP allows an external tap tempo switch, expression pedal (TRS), or control voltage (CV, TRS, 0-5v on ring) to control effect parameters. Can be configured via internal DIP switches to:

- **TAP** (default) – Multiple taps sets tremolo SPEED. A single tap restarts the tremolo waveform phase. [Requires a normally open TS or TRS tap tempo.]
- **SPEED** – fluidly control tremolo speed via expression/CV
- **DEPTH** – fluidly control tremolo depth via expression/CV

Wavefolder controls

VOICE selects between 3 different flavors of the circuit. This control is highly interactive with the other controls, especially the Gain knob.

- **Center:** Full spectrum wavefolding. Gets crazy real fast.
- **Left:** A low-pass filter before the folding stage keeps wave folding focused on fundamental pitches. Darker at lower gain settings, but more focused at higher gain settings.
- **Right:** Mixes a clean-ish signal with the wave-folded signal for clarity, balance, or to preserve bass and transients of the unaffected signal.

GAIN amplifies the input signal being fed into the wavefolder. In the same way more gain causes overdrive effects to clip harder, more gain makes a wavefolder fold more aggressively resulting in a stronger effect.

TONE selects between a dark, balanced, or bright output.

VOLUME controls the output level of the wave folder.

Internal controls

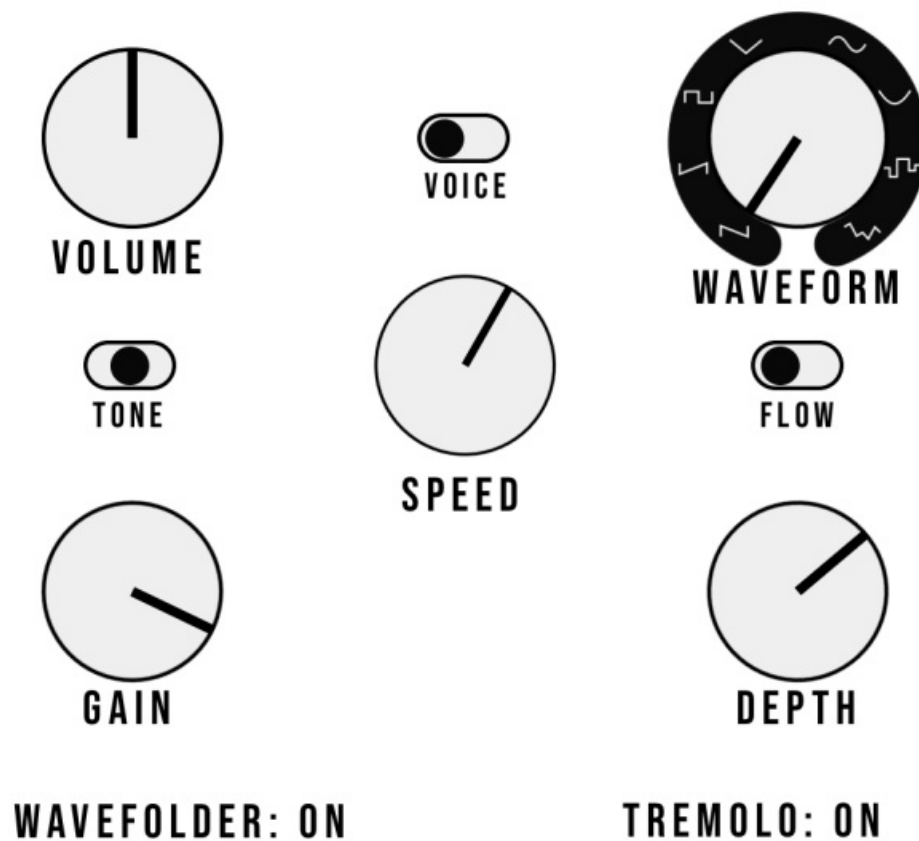
Gravity Well has a few internal controls to configure or tweak the behavior of the pedal. It is not necessary to adjust these at all, as the pedal ships from the factory with an optimal configuration for most people and purposes. TLDR: you don't need to worry about these if you don't want to!

- **TB/BUF:** A micro slide switch on the upper left of the PCB lets you choose between true bypass or buffered bypass. Buffered bypass is the default.
- **TAP/SPEED/DEPTH:** A set of 3 dip switches near the EXPR/TAP jack chooses which function that jack should serve (see above). Only one function should be selected at a time. TAP is the default.
- **REDUCE GAIN:** There is set of 2 dip switches near the bottom right of the PCB. Switch #1 reduces overall wave folder gain when active. Defaults to off (high gain). Switch #2 has no function.
- **TREMOLO VOLUME:** A trim pot on the bottom tab of the PCB. The tremolo effect comes factory configured to achieve approximate unity loudness when the tremolo is engaged/bypassed. In other words, turning the tremolo on and off shouldn't make the output sound overall louder or quieter. However, because tremolo is all about modulating volume, depending on your settings you might want to change the output volume.
- **TONE RANGE:** A trim pot on the upper right of the PCB. Shifts the range of tones available with the main wavefolder TONE switch. Factory set to produce a moderate range. But if you find the main tone switch doesn't

get dark enough, or if you want to dial in a sound between two settings, tweak this trim pot to taste.

Other details

- 100% analog signal path
- ▼ = input ▲ = output
- Uses a 9V DC center-negative “boss PSA style” power supply. You know the one!
- Consumes approximately 35ma.



“THING in the ICE”



VOLUME



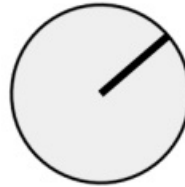
VOICE



WAVEFORM



TONE



SPEED



FLOW



GAIN



DEPTH

WAVEFOLDER: OFF

TREMOLO: ON

“BEA BICK BURFER”



VOLUME



VOICE



WAVEFORM



TONE



SPEED



FLOW



GAIN



DEPTH

WAVEFOLDER: ON

TREMOLO: ON

“BECKET SIDECHAIN”



VOLUME



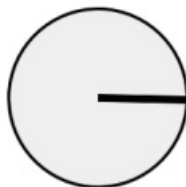
VOICE



WAVEFORM



TONE



SPEED



FLOW



GAIN



DEPTH

WAVEFOLDER: ON

TREMOLO: ON

WE ARE THE ROBOTS”



VOLUME



VOICE



WAVEFORM



TONE



SPEED



FLOW



GAIN



DEPTH

WAVEFOLDER: ON

TREMOLO: ON

PHOTON TORPEDO



VOLUME



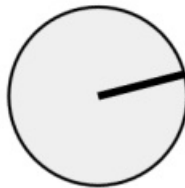
VOICE



WAVEFORM



TONE



SPEED



FLOW



GAIN





DEPTH

WAVEFOLDER: ON


TREMOLO: ON

LOS BICNEL

Documents / Resources

 	<p>COSMODIO INSTRUMENTS Wavefolder and Tremolo Sonic Refractor [pdf] User Manual Wavefolder and Tremolo Sonic Refractor, Tremolo Sonic Refractor, Sonic Refractor, Refractor</p>
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References

-  [Cosmodio Instruments](#)
- [User Manual](#)

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