

# CRUCIBLE

## CURVED PLATE AND CYMBAL SYNTHESIZER

**SIZE:** Adjusts the “size” of the cymbal engine. Increasing this parameter will increase decay time while also affecting the frequency response of the decay.

**DECAY:** Crucible’s cymbal model contains no envelopes or VCA’s! The DECAY parameter is achieved by applying a frequency independent damping constant to the engine. Turn clockwise to decrease the amount of damping applied resulting in longer more natural decay times.

**EXCITE:** Adjust the material and strike angle of the stick. The stick sound is brightest at the full CCW position, approximating a nylon tipped drum stick. Increasing this parameter moves toward a wood tip. Approaching the full CW position flattens the attack angle causing a larger impact area between the stick and the engine. This excites more of the engine expanding the output frequency spectrum, and increasing amplitude.

**INPUT:** Skip the exciter and inject audio directly into the EDGE of the engine. INPUT is parallel to the exciter, so feel free to use them side by side.




**EDGE - [ BELL ] - MID:**  
The status of these two jacks determines where the exciter will strike the engine. A trigger on EDGE or MID will apply the exciter to the respective position. A simultaneous trigger on both, or a gate on one and a trigger on the other will excite the “BELL” of the engine.

**VELOCITY:** Modify the velocity of the exciter.



**PITCH:** Adjusts the “pitch” and overall spectrum of the engine.

**TONE:** Applies frequency dependent damping to the engine. Turning clockwise will result in a “brighter” sound.

**MODEL:** (  ) models a curved plate with a hole in the center, approximating a cymbal. (  ) is similar to the last model with amplitude dependent “ghost transients.” (  ) removes the center hole from the model and extends parameter ranges, giving an entirely new response and feel.

**DEFORM:** Adjusts the “thickness” of the modeled cymbal. Increasing deform will “thin” the model making it more “crashy.”

**CHOKE:** Gate input that applies strong damping to the engine, causing it to decay immediately. A minimum damp time is applied when a trigger is received. Longer gates will continue to damp the engine.

# INTRODUCTION

Can a realistic cymbal sound be synthesized? Can a model be developed that actually sounds and behaves like a real cymbal? These are the questions we had to ask ourselves when we set out to make our next drum module. After many prototypes and a little serendipity we present Crucible. A true synthesizer that behaves and sounds like a real cymbal, while offering the otherworldly flexibility that can only be achieved with a synthesis model.

Crucible doesn't contain any samples. Every sound it produces is fully synthesized in real time. Behind the scenes, common digital synthesis functions like delay lines and digital filters are arranged to form an engine that provides the user with separate "Exciter" and "Model" synthesis blocks. This means Crucible's settings approximate the parameters of an actual stick and cymbal making both classic and experimental programming intuitive and rewarding. Recreate the sizzle and swell of your favorite kit cymbal then run your whole mix into the audio input and head into unexplored territories.

*W. Mathewson*

# SPECS

Size: 8hp  
Depth: 30mm (with cables)  
Power: +61mA, -17mA

Audio Input:  
100k ohm impedance  
20Vpp range

All CV Inputs:  
100k ohm impedance  
CV inputs sum with knobs. Full sweep is 5V

Gate Inputs:  
100k ohm impedance  
2V threshold Schmitt Trigger

Audio Output:  
220 ohm impedance  
20Vpp range  
4.0ms latency max

# WMD