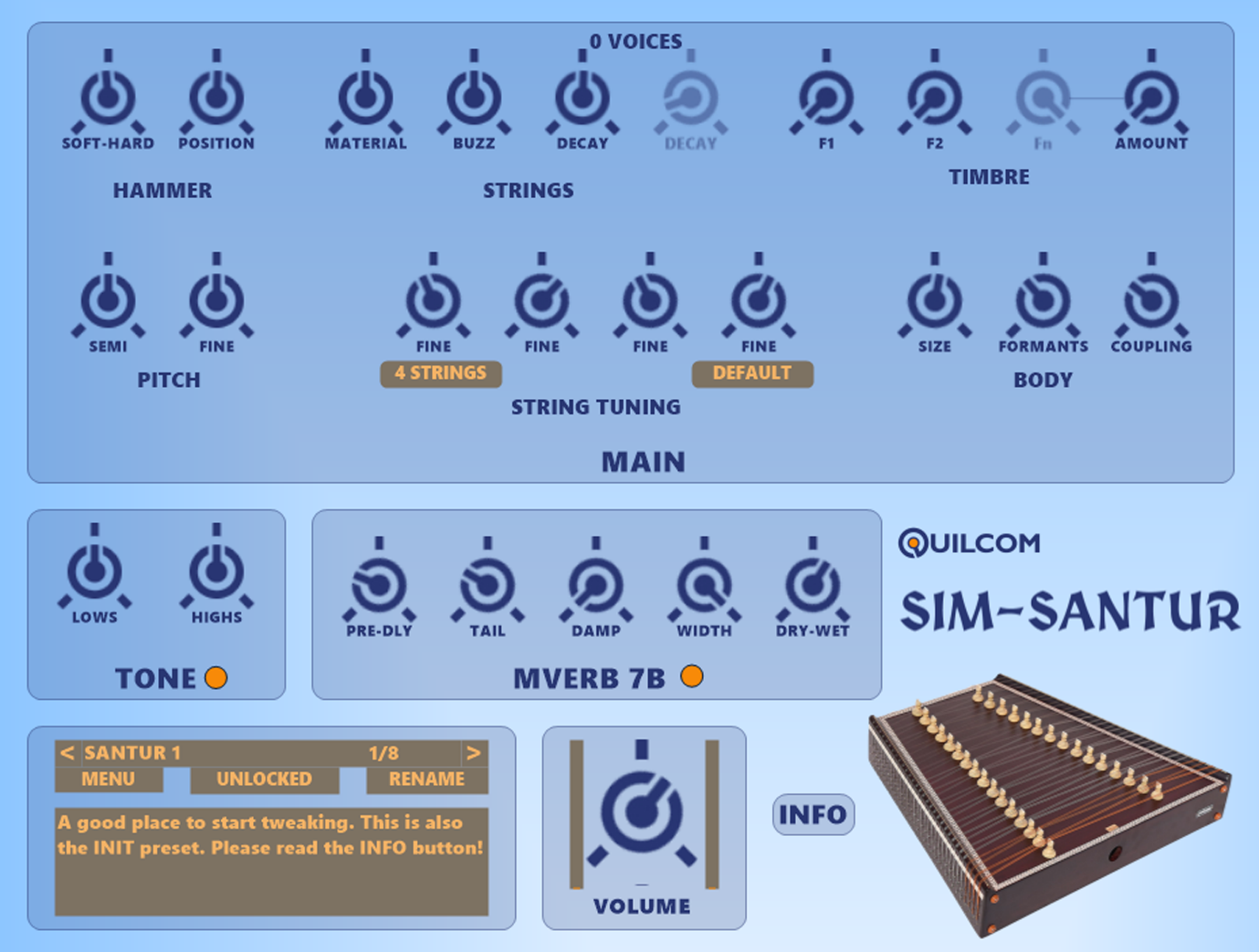
**Quilcom SIM-SANTUR**



**Design**

There’s a huge range of variants of Hammered Dulcimer instruments in the world, with many different names and histories, and the Santur is popular and widespread. This plugin offers a wide variation of timbres on the theme. Hammered dulcimers are multi-stringed zithers which are sounded by striking the string courses with small, thin, soft or hard-headed hammers rather than being plucked. Each note has at least 2 strings and normally 3 or 4, all tuned in unison. The sound can sometimes hint at “piano-like”, but with the limitations of a small zither’s body.

The *Background info* folder contains links for lots of interesting details.

**In use**

If you click on the  button you’ll see reminder text which is as follows:

*Ref: Middle C is C4*

*Playing range is from C3 to C6*

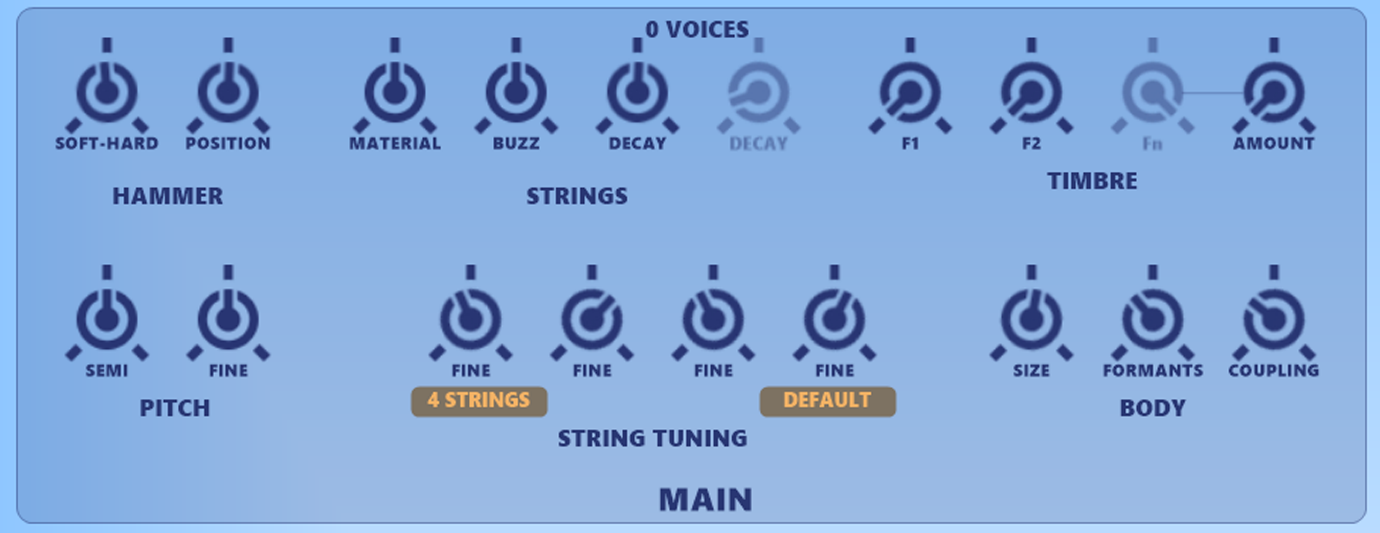
*The sustain/hold pedal (CC64) can switch between 2 different decay times. Actual note sustain is disabled.*

*Velocity is in use.*

*Pitch bend, modwheel and aftertouch are not used.*

Most real instruments have a diatonic 3-octave range and many don’t include all the notes and use appropriate scales instead. Some have extra courses to make them chromatic. This plugin provides all the notes, so you can choose what you play without such limitation.

**MAIN** panel



This panel is where you adjust the generation of sounds.

The individual control areas will be described next…

**HAMMER**



At least 2 types of hammers are often used by players, in matching pairs. The main difference is in the head material which actually strikes the string courses. This can range from a felt or leather material to a hard surface like wood or metal. The **SOFT-HARD** knob adjusts this parameter.

The strings can be struck midway for a softer sound but are normally struck close the bridges. This is adjusted with the **POSITION** knob. Fully up is closest to the bridge to get a brighter sound.

**STRINGS**



The material from which the strings are made can have a big influence on the timbre produced. This is adjusted with the **MATERIAL** knob. Below about half-way, the sound tends towards nylon and above half-way tends towards to steel. Generally, steel strings are the norm.

Listening carefully to recordings on YouTube demonstrated to me than loud notes can sometimes generate a brief buzz when first struck. Although very short in duration, this can give a subtle sitar quality *to the attack only*. Whilst this may well be an imperfection, I heard it often enough to add the sound to the synthesiser. It’s sensitive to velocity and has a random element to it. The **BUZZ** knob simply sets the nominal level of this sound.

Players seem to very rarely want to damp the strings after sounding. If you want to do this you can use the dual-decay system. There are 2 **DECAY** knobs which adjust the decay times. They’re selected by pressing the sustain (hold) pedal or sending CC64 on/off. In the picture this is set so the lefthand **DECAY** knob is adjusted to the full decay time wanted, and pressing the pedal selects the righthand **DECAY** knob which here is set to a much shorter decay time. You can however swap the adjustments over so it works more like a piano sustain pedal.

Long decay times will allow multiple voice channels to open, increasing the CPU burden. On my fast PC it wasn’t a problem, but I provided a **VOICE** counter as an indication.

**TIMBRE**



This panel enhances the range of timbres available. It can allow wide variations of the base sound.

**F1** adjusts the fundamental level.

**F2** adjusts the level of the second harmonic.

**Fn** sets the ratio, in whole steps, for an additional harmonic, from **F3** to **F8**. The **AMOUNT** knob adjusts the level of the ratio chosen on the **Fn** knob. When the **AMOUNT** knob is at zero (as shown) the **Fn** knob is dimmed and not available.

**PITCH**



This is a global control panel allowing you to offset the pitch in semitones or fine tuning.

**STRING TUNING**



This panel allows you to adjust fine detuning of the strings in a course. As mentioned before, Hammered Dulcimers always have at least 2 strings per course. The **4 STRINGS** selector allows you to choose from 2, 3 or 4 strings. Of course, 4 strings sound much richer, especially with small amounts of detuning between them. The **FINE** tune knobs will be available (not dimmed) based on the number of strings chosen. These knobs are non-linear, so the important small detunings are easier to adjust. The **DEFAULT** button instantly restores zero detuning.

**BODY**



**SIZE** is a macro adjusting the volume (cubic capacity) of the sound box. Fully down is smallest. It affects the formants’ frequencies created.

**FORMANTS** adjusts the *levels* of formant resonances which add to, and colour, the sounds.

When a harder hammer strikes the strings, the body will also be briefly excited. The **COUPLING** knob adjusts the level of this excitation. The actual “tap” sound’s timbre will be influenced by the **SIZE** adjustment knob. I suggest you set this **COUPLING** knob to minimum while playing a sequence, then turn it up just enough.

**TONE**



The **TONE** panel is designed specifically with this type of instrument in mind. Rather than call the knobs Bass and Treble I’ve gone for **LOWS** and **HIGHS**, since the filtering is more specific. When set centrally, as shown, there is little effect on the sound. The knobs work like *cut*, when set low, and *boost* when set high. You can turn the DSP off with the orange LED switch.

**MVERB 7B**



Once again, I used Martin Vicanek’s reverb because I really like the sound and behaviour. To turn it off, and use your own favourite, use the orange LED-switch.

**PRE-DLY** provides a short delay before the reverb DSP. This can create the impression of being closer to the instrument in a reverberant space.

**TAIL** sets the length of the reverb tail.

**DAMP** reduces the higher frequencies as the tail decays, to simulate a more absorbent space.

**WIDTH** is the stereo width of the reverb tail only.

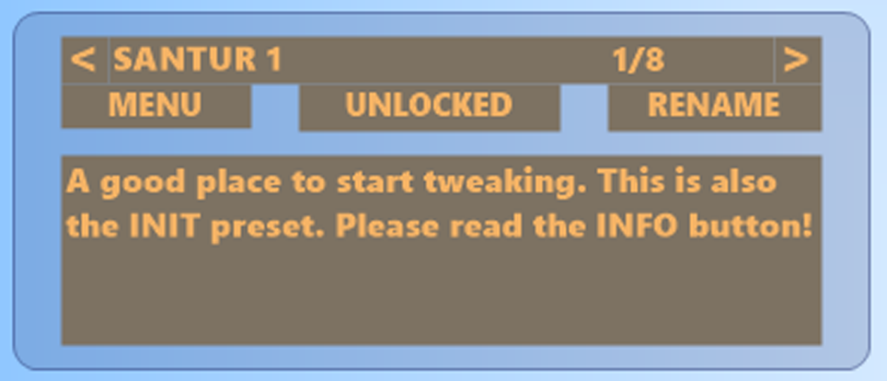
**DRY-WET** is the mix between the original sound and the reverb sound.

**Output volume**



The output **VOLUME** knob features a stereo bar meter which indicates the average peak signal level. The centre circle turns red for 1 second if the peak goes out of -1 to1 range even briefly. If you need accuracy or a different indication, please use the DAW’s meter.

**Preset Manager**



I’ve provided some demo presets to give you an idea about variations possible.

At the top of the preset manager is the section where you select the preset by clicking on the preset name or paging though them using the arrow buttons. The synth is silenced and reset when a preset is changed.

The **MENU** selector is where you operate on presets and banks. You can save, load, copy or paste presets, or save and load a bank from this menu.

All changes made to any settings will be stored with the DAW song file unless the switch **UNLOCKED** is changed to **LOCKED**. This locking feature is to avoid losing settings if you just want to mess with editing but want to keep the original default parameters.

The **RENAME** button allows you to name or rename a preset, providing the preset manager is **UNLOCKED**. Otherwise, the **RENAME** button is dimmed.

At the bottom is a free text area for adding comments to the preset. These comments are saved with the song, and the preset if you save it, providing the preset manager is **UNLOCKED**. Please be aware that you shouldn’t use a carriage return (Enter) in this text because the system won’t store any text after that. Also please be aware that when you **RENAME** a preset this text will clear, so if you want to keep it and just rename the preset, highlight the text, copy it then paste back in after you’ve renamed.