

SOLAR 42: KEYBOARD

The Solar keyboard is a performance oriented touch controller featuring 12 capacitively sensitive plates, equipped with highly accurate Volt/octave outputs, ready to connect to your modular setup also.

CLOCK

External clock input. When a clock pulse is received the keyboard automatically switches to external clock source. Recommended level: 0 to +5V, though higher voltages are accepted.

VOLT/OCTAVE

Volt/octave output, ranges over 8 octaves from 0V to +8V. By default the signal present on this output is normalized to the Volt/octave input of the VCOs (voice 4 and 5).

GATE LEFT (MAIN)

0 to 10V gate output. By default the signal present on this output is normalized to the gate input of the envelope generators controlling the voltage controlled amplifiers of voices 4 and 5.

GATE RIGHT

0 to 10V gate output.

PRESSURE

Control voltage or Volt/octave output, ranges over 8 octaves from 0V to +8V. The signal on this output is determined by 'Behaviour' and 'Pressure output' parameters.

RESET

Arpeggiato reset input. A raising edge on this input resets the arpeggiator to its first step. Recommended level 0 to +5V, though higher voltages are accepted.

BUTTONS

The pushbuttons are used to transpose the output of the keyboard. Their behaviour depends on some settings. In 'Single behaviour' when quantiser is enabled the pushbuttons set the active octave range of the keyboard. In 'Single behaviour' when quantiser is disabled the pushbuttons add an offset to the signal present at the Volt/octave output. In 'Twin and split behaviour' pressing the pushbutton will enable or disable the offset of the corresponding side of the keyboard. When quantiser is enabled the amount of offset can be altered by semitones over 5 octaves. When quantiser is disabled the amount of offset can be finetuned in 0.0025V steps over 5V. To change the value of the offset press and hold the button and rotate the encoder (just make sure that currently no parameter is highlighted for editing).

ENCODER

Rotate the encoder to scroll through the list of parameters, click the encoder to select a parameter for editing.

KEYBOARD PLATES

To activate a plate's designated note or voltage level, simply press it. This value will be present on the Volt/octave output as analog voltage. For tuning a note plate, press and hold it while rotating the encoder to adjust its value. For successful adjustment, ensure that no parameter is currently highlighted for editing.

The signal level present on the pressure output is directly proportional to the readings of the capacitive sensors connected to the plates. It's essential to note that the Solar keyboard is not force-sensitive but responds to the surface area of flesh applied directly to the plates. The capacitive sensor's output increases with more finger surface area placed on the plate.

The keyboard's functionality is determined by certain parameters. These parameters can be grouped as follows:

- BEHAVIOUR
- ARPEGGIATOR
- PORTAMENTO
- VIBRATO
- PRESSURE
- QUANTISER
- CLOCK

Behaviour:

single - 12 key mode, the signal present on the pressure output is determined by the 'Pressure output' parameter (see below).

twin - In this mode, the keyboard separates into two distinct controllers, each equipped with 6 note plates. In this configuration, the pressure output functions as the Volt/octave output for the right side. While the two sides share the same parameters, they can be played independently.

split - Similar to the twin mode, the keyboard can also operate in a split mode with two sides, each having separate parameters. This configuration enables various possibilities, such as having an arpeggiator on the left side and a simple keyboard on the right side.

Arpeggiator state:

The arpeggiator is a common synthesizer feature that generates a looping sequence (arpeggio) when you press down a chord. Rotate the encoder to enable/disable arpeggiator.

Arpeggiator hold:

When enabled the arpeggiator will continue to play the arpeggiated sequence even when note plates are not held.

Arpeggiator clock:

Sets the clock multiplication/division ratio for the arpeggiator.

Arpeggiator direction:

Synthesizers with traditional piano keys will generate the order of the arpeggiated sequence based on the incoming notes. Solar creates an arpeggio based on the sequence number of pressed plates and the direction parameter.

- forward [eg.: 1, 2, 5, 8, 1, 2, 5, 8..]
- backward [eg.: 8, 5, 2, 1, 8, 5, 2, 1..]
- ping-pong [eg.: 1, 2, 5, 8, 5, 2, 1, 2..]
- random

Arpeggiator variation:

When enabled the arpeggiated progression will be played again transposed by the selected interval. The possible number of repeated variations can be: OFF (no variation), x1, x2, x3

Arpeggiator variation interval:

Sets the interval of repeated variations from 1 to 12 semitones.

Arpeggiator rhythm:

Applies a rhythmic pattern to the arpeggiators clock source. Think of it as a gate sequencer between the clock source and the arpeggiators clock input. Steps that are enabled will let through the incoming clock signal, while the steps that are disabled will mute it.

Arpeggiator rhythm length:

Sets the length of the rhythm sequencer from 1 to 8 steps.

Portamento:

Set the speed of gliding (0 - 255), i.e. how much time it takes to transition from one pitch to the next. This creates slew limiting effect on the CV output.

Legato:

off - Portamento is always on.
on - Gliding happens only when two or more note plates are touched simultaneously (this parameter has no effect when arpeggiator is enabled).

Vibrato speed:

Sets the rate (0 - 127) of the LFO that's modulating the pitch (Volt/octave) output, thereby creating vibrato effect.

Vibrato depth:

Sets the amount of modulation (0 - 127).

Vibrato delay:

Specifies a time delay (0 - 127) before vibrato begins to apply until it reaches the full strength determined by the depth parameter.

Vibrato pressure control:

When enabled, the modulation amount is altered by the pressure applied to keys.

Pressure output:

pressure - The voltage on the pressure output will continuously follow the pressure applied to key plates.

ASR - Attack/sustain/release envelope generator.

AD - Attack/decay envelope generator.

LOOP - Looped AD envelope generator.

random - Outputs a random voltage whenever a plate is pressed.

Rise:

Creates slew limiting effect on rising edge in pressure and random modes, sets attack time in envelope modes (0 - 255).

Fall:

Creates slew limiting effect on falling edge in pressure and random modes, sets decay/release time in envelope modes (0 - 255).

* * * * *

Scale editor:

Turn notes on/off of the scale applied by the note quantiser. When all notes are disabled, the keyboard functions as a microtonal keyboard. In this mode, it allows for the exploration and performance of microtonal music, where pitches and intervals can be finely tuned beyond the standard 12-tone equal temperament system. This feature enables musicians to access a wider range of scales and tonalities, opening up new possibilities for creative expression and experimentation in their compositions and performances.

Load scale:

Select and load a preset scale/mode to the quantiser and to the keyboard also. (Semitones, Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, Locrian, Blues major, Blues minor, Pentatonic major, Pentatonic minor, Folk, Japanese, Gamelan, Gypsy, Arabian, Flamenco, Whole tone).

Root note:

Sets the root note of the scale applied by the note quantiser from C to H.

* * * * *

Clock:

Sets the tempo of the keyboards internal clock within a range of 10 to 300 BPM (Beats Per Minute). While this range might seem limited at first, it can be significantly extended by utilizing the arpeggiator's clock multiplication/division parameter.

When a clock pulse is received through the CLOCK INPUT jack, the keyboard will automatically switch to using the external clock source for synchronization. To revert back to the internal clock, all you need to do is modify the BPM setting. By adjusting the tempo value manually, the keyboard will resume using its internal clock for tempo generation.