

# SKULPTsynth<sup>SE</sup>

**Modal SKULPTsynth SE**  
4 voice virtual-analogue synthesiser

## User Manual

OS Version - 2.1



## Important Safety Information



**WARNING – AS WITH ALL ELECTRICAL PRODUCTS**, care and general precautions must be observed in order to operate this equipment safely. If you are unsure how to operate this apparatus in a safe manner, please seek appropriate advice on its safe use.

### **ENSURE CORRECT BATTERY POLARITY - FAILURE TO INSTALL BATTERIES CORRECTLY MAY CAUSE PERMANENT DAMAGE**

This apparatus **MUST NOT BE OPERATED NEAR WATER** or where there is risk of the apparatus coming into contact with sources of water such as sinks, taps, showers or outdoor water units, or wet environments such as in the rain. Take care to ensure that no liquids are spilt onto or come into contact with the apparatus. In the event this should happen remove power from the unit immediately and seek expert assistance.

This apparatus produces sound that could cause permanent damage to hearing. Always operate the apparatus at safe listening volumes and ensure you take regular breaks from being exposed to sound levels

**THERE ARE NO USER SERVICEABLE PARTS INSIDE THIS APPARATUS.** It should only be serviced by qualified service personnel, specifically when:

- The apparatus has been dropped or damaged in any way or anything has fallen on the apparatus
- The apparatus has been exposed to liquid whether this has entered the apparatus or not
- The power supply cables to the apparatus have been damaged in anyway whatsoever
- The apparatus functions in an abnormal manner or appears to operate differently in any way whatsoever.

# Index

<b>00. Introduction</b>	<b>6</b>
<b>01. Getting Started</b>	<b>8</b>
Basic Functions	9
UI Combinations	10
Presets	13
<b>02. Connections</b>	<b>14</b>
<b>03. Synthesis Engine</b>	<b>16</b>
Oscillators	18
Filter	19
Envelopes	20
LFOs	21
Keyboard	22
FX	24
Modulation	25
Modulation Slots	27
Arpeggiator	28
Sequencer	29
Settings	30
<b>04. MIDI</b>	<b>32</b>
MIDI Implementation Chart	37
MPE	42
<b>05. Update</b>	<b>44</b>
<b>06. MODALapp</b>	<b>46</b>
Getting Started	48
Editor Page	49
Controller Page	50
Sequencer Page	51
Preset Manager Page	52
Settings Page	53
<b>Appendix A</b>	<b>54</b>
Troubleshooting	55
<b>Warranty Information</b>	<b>58</b>



# 00

## Introduction

Modal SKULPTsynth SE is a portable 4-voice 32 oscillator virtual analogue synthesiser.

It features morphable waveforms, state variable filter, a comprehensive modulation matrix, 8 modulation sources, including two audio rate LFOs, a fully featured arpeggiator and a realtime sequencer.

### **SPECIFICATION:**

- 4 voice – 32 oscillator virtual analogue synthesiser
- 8 oscillators per voice with 2 selectable morphable waveforms
- Mixer stage for osc levels along with FM, PWM, tuning and Ring Modulation options
- Monophonic, Duophonic and Polyphonic modes available
- Multi option Unison / spread to detune the 32 oscillators for a huge sound
- 8 slot modulation matrix with 8 sources and 37 destinations
- 3 x envelope generators for Filter, Amplitude and Modulation
- 2 x audio rate LFOs, one global and one polyphonic
- Realtime sequencer that will record up to 256 notes and up to 4 parameters of animation
- Fully featured arpeggiator with division, direction, octave, bipolar swing and sustain controls
- Resonant filter that can be morphed from low pass, through band pass, to high pass
- Delay and distortion (waveshaping overdrive, not bitcrushing) effects
- Optional MIDI clock sync for LFOs and Delay
- 128 patch and 64 sequence storage locations
- 16 key touch MIDI keyboard
- Supports MPE-compatible MIDI controllers, allowing you to apply polyphonic control and expression to individual notes.
- MIDI DIN In and Out – Analogue clock sync In and Out connections
- Class compliant MIDI provided over USB connection to host computer or tablet
- Headphone and line output
- Power by USB or 6 x AA batteries
- Optional software editor available for MacOS, Windows, IOS and Android
- Portable and compact design
- Dimensions: 255mm x 135mm x 68mm (10"x5 1/2"x 3")

# 01

## Getting Started

### Basic Functions

#### Powering on

SKULPTsynth SE can be powered either through the micro USB socket, or by 6 x AA batteries installed in the underside battery compartment.

To use USB power, simply connect the supplied Micro USB cable to a power source, and slide the power switch to the left-hand "USB" position.

To use batteries install 6xAA in the battery compartment on the underside of the unit, and slide the power switch to the right-hand "BAT" position.

**PLEASE ENSURE CORRECT BATTERY POLARITY - FAILURE TO INSTALL BATTERIES CORRECTLY MAY CAUSE PERMANENT DAMAGE.**

Before powering up ensure the volume control is at minimum. Electronics during first power-on create a 'pop' and this may cause damage to your speakers and the sound guy's ear drums.

Power on by using the power toggle on the rear of the unit to select to correct source as outlined above the toggle.

#### **WARNING!!**

**DO NOT hold the LFO2/RM button whilst powering on SKULPTsynth SE.**

Doing so and holding the button for a further 4 seconds will erase the firmware and stop the SKULPT from working. You can restore the firmware via the update process, but it's best to avoid doing this unintentionally.

#### Touch Pads

#### Playing notes

The 16 touch pads allow you to play the synthesiser without sending it MIDI from another device. The octave can be configured using the OCT+ and OCT - buttons. The touch pads also send MIDI notes out, which you can use to control other instruments or features on your DAW.

#### Secondary functions

The touch pads all have multiple secondary functions that can be accessed by holding the relevant SHIFT / PRESET (or combination) button in your selected mode. (See UI Combinations)

## UI Combinations

SKULPTsynth SE is a comprehensive and fully featured synthesiser despite its small size. Therefore there are a number of user interface combinations that are required to access some of the deeper functions of the synth:

**SHIFT** + DIAL/BUTTON = **ORANGE PARAMETER**

### Presets

PRESET + KEY 1-16 = LOAD PRESET  
PRESET + HOLD KEY 1-16 = SAVE PRESET  
**SHIFT** + PRESET + KEY 1-8 = PATCH BANK  
**SHIFT** + PRESET + KEY 9-12 = SEQ BANK  
**SHIFT** + PRESET + HOLD KEY 13 = INIT PRESET  
**SHIFT** + PRESET + KEY 14 = RANDOMISE (PATCHES ONLY)  
**SHIFT** + PRESET + KEY 15/16 = DOWN/UP

### Arpeggiator

ARP = ARPEGGIATOR ON/OFF  
ARP + KEY 1-8 = ARP NOTE LENGTH  
ARP + KEY 9-11 = ARP DIRECTION  
ARP + KEY 12 = NOTE ORDER  
ARP + KEY 13-16 = ARP OCTAVE

### Sustain

**SHIFT** + ARP = SUSTAIN ON/OFF  
**SHIFT** + HOLD ARP (1 second hold) = SUSTAIN LATCH MODE ON/OFF

### Clock

**SHIFT** + TEMPO = SWING  
**SHIFT** + EG = MIDI SYNC (LFO1, LFO2 + DELAY)  
CLOCK PRIORITY = 1) SYNC 2) EXT MIDI 3) INTERNAL

### Chord

**SHIFT** + OCT+ = CHORD MODE ON/OFF  
HOLD CHORD + **SHIFT** + OCT+ = SET CHORD

### Transpose

**SHIFT** + OCT- = TRANSPOSE ON/OFF  
**SHIFT** + OCT- + NOTE = TRANSPOSE MIDDLE C

## UI Combinations

### Sequencer

PLAY = START/STOP SEQUENCE  
**SHIFT** + PLAY = RECORD NOTES/PARAMETERS  
**SHIFT** + HOLD PLAY = SEQ METRONOME  
PRESET + TEMPO = SEQ QUANTISE  
**SHIFT** + VOICE = SEQ MODE ON/OFF

SEQ MODE changes the behaviour of the 16 touch pads:

SEQ MODE + KEY 1-4 = PARAMETER ROW ON/OFF  
SEQ MODE + KEY 5-8 = SEQ LENGTH  
SEQ MODE + HOLD KEY 9-13 = CLEAR ROWS  
SEQ MODE + HOLD KEY 14 = MUTE NOTE ROW  
SEQ MODE + KEY 15 = HOLD + REPEAT STEP  
SEQ MODE + KEY 16 + RELEASE = LOOP START + END  
SEQ MODE + KEY 16 = EXIT LOOP

### Modulation

8 MOD SOURCES = GLOBAL LFO1, POLY LFO2, MOD-EG, NOTE, VELOCITY, AFTERTOUCH, MODWHEEL + EXT CC

MOD SOURCE BUTTON = ASSIGN ON/OFF  
ASSIGN + PARAMETER = MOD SLOT PARAM + DEPTH  
ASSIGN + VOL = MOD SOURCE GLOBAL DEPTH  
LFO1 + LFO2 HAVE DEDICATED KNOB FOR DEPTH  
ASSIGN + LED FLASH = INVALID DESTINATION

**SHIFT** + LFO = MOD SLOT MODE ON/OFF

SLOT MODE changes the behaviour of the 16 touch pads:

SLOT MODE + KEY 1-8 = SLOT ON/OFF  
SLOT MODE + HOLD KEY 9-16 = CLEAR SLOT 1-8

### LED Animations

- Loading a patch - Key LED right to left scroll
- Loading a Sequence - Key LED left to right scroll
- Any preset save - Key LED flash
- Assigning mod slot - Key LED flash - Invalid Assignment / no more modulation slots available
- Seq record LED and MIDI Sync LEDs flash at tempo

## UI Combinations

There are a number of different latch-able 'states' that the panel and keyboard can be set to allow the the encoders, buttons and touch pads to control alternative functions. If the panel and/or keyboard doesn't appear to be functioning as expected, please check the following things

- If the SHIFT button LED is on, the panel is latched in 'shift mode' for accessing the secondary functions of the encoders and buttons (see orange text on panel). Simply press the SHIFT button to unlatch this state and return to the regular state.
- If the VOICE LED is flashing this indicates the keyboard is latched in 'sequencer edit mode' for controlling sequencer parameters (see orange text on keyboard). Press SHIFT + VOICE to unlatch this state and return to the regular state.
- If the LFO ASSIGN button LED is flashing this indicates the keyboard is latched in 'mod slots edit mode' for controlling the mod slots. Press SHIFT + LFO ASSIGN to unlatch this state and return to the regular state.
- If any of the MOD section LEDs are on, or the LFO ASSIGN button LED is on or flashing, this indicates that the panel is latched in 'modulation assign mode' for the illuminated mod LED for assigning destinations to the selected source. Simply press the button of the illuminated LED to unlatch this state and return to the regular state.

## Presets

There are a two types of presets on SKULPTsynth SE, patch presets and sequence presets.

Patch presets are arranged into 8 banks of 16 giving you 128 slots in total.

Sequence presets are arranged into 4 banks of 16 giving you 64 slots in total.

### LOAD A PRESET

Presets can be easily loaded by holding the PRESET button on the front panel and tapping one the the 16 touch pads. Each touch pad represents the preset slot in the currently selected bank.

You can change the currently selected bank by first entering SHIFT mode and then holding the PRESET button on the front panel and tapping one of the touch pads 1-12.

The currently selected bank determines what type of preset is being loaded, patch or sequence. Banks 1-8 contain the patch presets and banks 9-12 contain the sequence presets.

### SAVE A PRESET

Presets can be saved by holding the PRESET button on the front panel and then HOLDING one the the 16 touch pads. Each touch pad represents the preset slot in the currently selected bank.

If the currently selected bank is a patch bank (Bank 1-8) then the current patch setting will be saved into the selected slot. If the currently selected bank is a sequence bank (Bank 9-12) then the current sequence is saved into the selected slot.

### INIT PRESET

You can initialise a patch preset by first entering SHIFT mode and then holding the PRESET button on the front panel and holding touch pad 13.

### RANDOMISE PRESET

You can randomise a patch preset by first entering SHIFT mode and then holding the PRESET button on the front panel and tapping touch pad 14.

### PRESET UP/DOWN

You can quickly load the next preset in the corresponding slots by first entering SHIFT mode and then holding the PRESET button on the front panel and pressing touch pad 15 for the preset in the slot down or touch pad 16 for the preset in the slot up.

# 02

## Connections

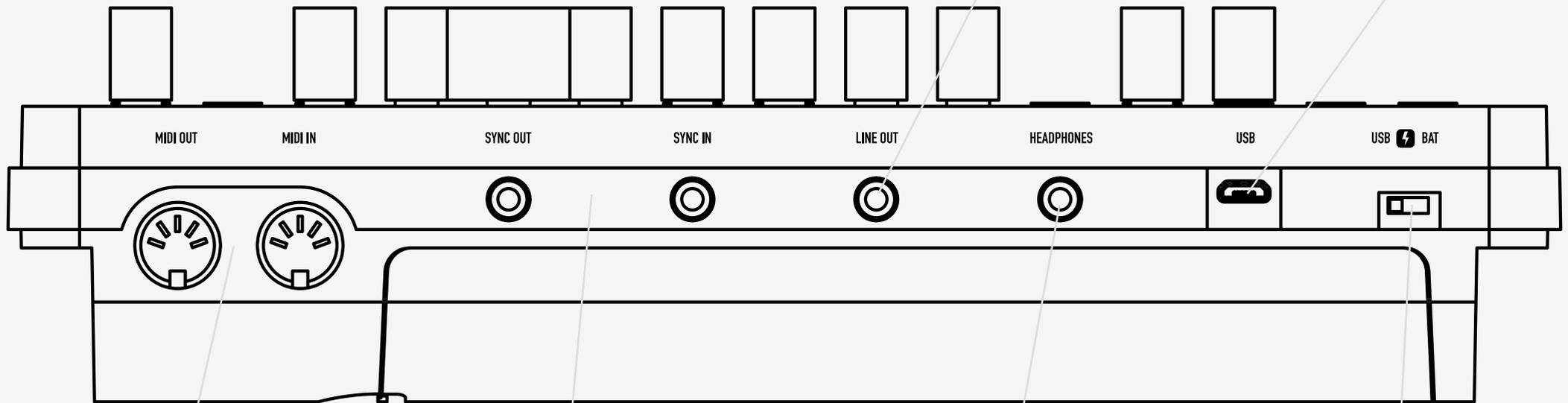
SKULPTsynth SE has seven external connections: USB, Line out, Headphones out, Clock Sync In, Clock Sync Out, MIDI In and MIDI Out.

### Line Out

Line level dual mono output on 3.5mm Stereo jack. This output can be connected to any line level input for monitoring and recording. The line output is higher quality than the headphone output, so always use it when recording or performing.

### USB

Micro USB Connection for power, MIDI input and MIDI output. Simply connect Skulpt to a powered USB socket, such as on your computer, or a powered hub with a standard micro USB cable. To use MIDI, connect to your computer or tablet with a micro USB cable and find 'Skulpt Synth' listed as a MIDI port on your computer.



### MIDI (In, Out)

MIDI In / Out on MIDI 5-pin DIN cable. These outputs can be used to communicate with any other MIDI devices. (See the MIDI section)

### Clock Sync (In, Out)

Clock Sync In / Out on 3.5mm Mono jack. Simply plug into your clockable gear as desired. (See the Sync section)

### Headphones

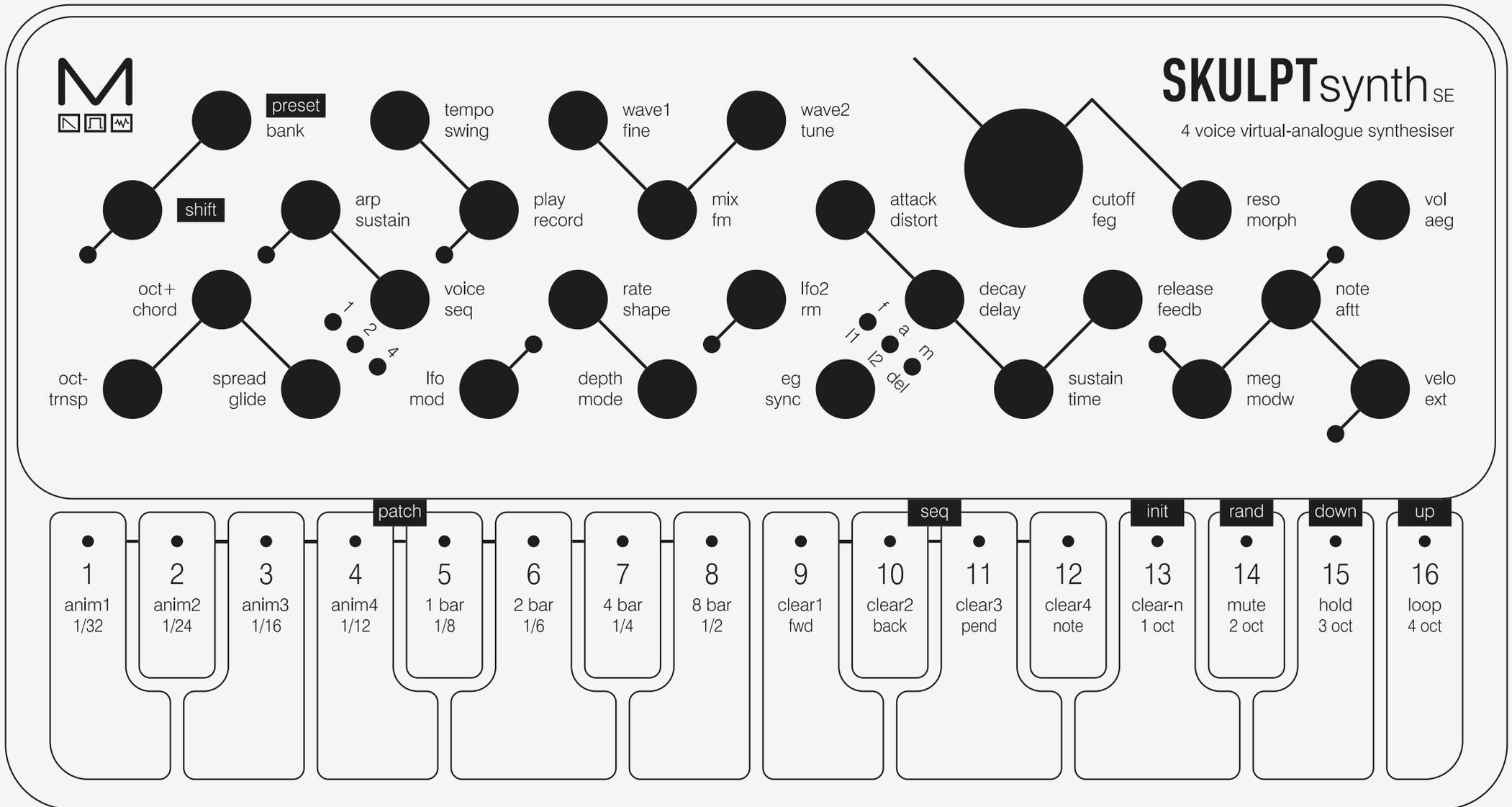
Headphone output on 3.5mm Stereo jack. The volume can be adjusted using the VOL function (see the Getting Started section), the MODALapp, or through MIDI CC. (See the MIDI section)

### Power

Power switch for SKULPT.  
SWITCH IN MIDDLE = POWER OFF  
SWITCH TO BAT = POWERED BY 6xAA BATTERIES  
SWITCH TO USB = POWERED BY MICRO USB

# 03

## Synthesis engine



## Oscillators

SKULPTsynth SE features 2 unique morphable waveform oscillators identified by Wave 1 and Wave 2 labels. It has a total of 32 oscillators inside, that's 4 voices with 8 oscillators per voice.

- **Wave 1:** This encoder allows you to sweep continuously thru the waveforms from Sine - Triangle - Saw - Square - PWM.
- **Wave 2:** This encoder allows you to sweep continuously thru the waveforms from Sine - Triangle - Saw - Square - Noise - Low Pass Filter down to -inf dB.
- **Mix:** The Mix encoder allows you to balance the volume between each wave. All the way to the left you will hear only Wave 1, All the way to the right you will hear Wave 2. In the centre you will hear a balanced blend of both waves.
- **Fine:** Holding the Shift key and turning this encoder allows us to control the fine tuning of Wave 2 (Fine) +/- 100 cents
- **Tune:** Holding the Shift key and turning this encoder allows us to control the coarse tuning of Wave 2 (Tune) at desirable intervals +/- 4 octaves.

Note: assigning modulation to the Tempo / Swing knob will control the Global Tune of the oscillators.

- **FM:** Holding the shift key and turning this encoder controls the FM amount between Waves where Wave 1 is the carrier and Wave 2 is the modulator. This means that Wave 2 is modulating Wave 1 up to a maximum of +/- 4 octaves & 100 cents.

Because of the wide range of Wave 2 detune and the flexibility of the LFOs, this can be used to create a huge array of effects, from adding rich harmonics to interesting low-frequency modulations.

- **RM:** Holding shift and pressing the LFO2 button causes ring mod to be enabled and disabled. By default Ring Mod is disabled. Enabling it will cause the LFO 2 LED to flash in an on or off direction, depending on whether LFO 2 is being edited or not.

Ring modulation is a form of amplitude modulation where a modulating wave (Wave 1) affects a carrier waveform (Wave 2). The effect generates new harmonics that are the sum and difference of all frequencies present in the two waves used to generate the effect, but this also causes the original frequencies in the carrier signal to disappear.

## Filter

SKULPTsynth SE uses a Modal designed state variable 2-pole resonant filter (capable of morphing from low pass, through band pass, to high pass).

- **Cutoff:** This parameter controls the low-pass filter cutoff frequency. This affects the cutoff frequency of the filter, from 0Hz up to 20kHz.
- **Reso:** This parameter controls the amount of resonance of the filter.
- **FEG:** Holding the shift key and turning this encoder allows bipolar control of the Filter-EG amount. (See the Envelopes section)
- **Morph:** Holding the shift key and turning this encoder allows control of the shape of the filter: note that the filter is low-pass by default.
  - At its minimum value you have a low pass filter;
  - We move through a sort of low-shelving;
  - At its midpoint we have a band-pass filter;
  - At its maximum value a 1-pole high-pass filter.

*TIP: With this feature at lower settings you can dampen the low frequencies while maintaining a rich high-end texture.*

## Envelopes

SKULPTsynth SE provides 3 separate 4-stage Envelope Generators (i.e. envelopes), one for the filter (FILT-EG), one for the amplifier (AMP-EG) and one for modulations (MOD-EG). With negative amounts only the attack, decay and sustain levels are inverted, the release phase will still tend to 0.

- **Attack:** This parameter controls the time passing from the moment you press a key (i.e. 'MIDI Note On' message) until the sound reaches its maximum value.
- **Decay:** This parameter controls the time passing for the envelope to drop from its maximum value to a sustain level (see below).
- **Sustain:** This parameter controls the level of the sustain phase (i.e. the volume of the sound while keeping the key pressed for AMP-EG). If there are no modulations active, this volume keeps constant until you release the key. (The envelope then enters the 'release' phase)
- **Release:** This parameter controls the time passing from the moment you leave a key (i.e. 'MIDI Note Off' message) until the sound reaches silence.
- **EG:** This button cycles through which envelope generator the above controls are representing. F = FILT-EG - A = AMP-EG - M = MOD-EG

TIP: Holding down the EG select button and changing the ADSR parameters will alter all three envelopes simultaneously and is a useful shortcut to quickly change all envelopes at once.

- **AEG:** While holding Shift and turning volume this controls the AMP-EG amount. This controls the amount of modulation the AMP-EG has over the volume.

## LFOs

SKULPTsynth SE features two individual low frequency oscillators: LFO 1 is a simple LFO and is 'global' across the patch (so it affects the whole sound); LFO 2 has more parameters and is applied polyphonically or 'per voice' (so it affects each note/voice individually).

Both LFO1 and LFO2 can be set to Retrigger, Single and Free mode and have these parameters:

- **Rate:** This parameter controls the speed of the LFO. On LFO2, using the second half of the dial, the LFO rate is set to a division of the main frequency of the note being played. This allows the LFO frequency to run into the audible range and maintain harmonious modulations. A massive array of effects can be achieved in this way, including AM and FM.
- **Depth:** This parameter controls the global depth for all LFO modulation for either LFO1 or LFO2.
- **Shape:** When holding the SHIFT key this encoder controls the LFO Shape. This allows you to continuously sweep through the four available LFO waveforms (i.e. sine, sawtooth, square and sample & hold).
- **Mode:** When holding the SHIFT key this encoder selects the Retrigger Mode. The modes are:
  - Retrigger** - in this mode, each new keypress restarts the LFO and it then continues to run - particularly useful for Unison/Stack sounds.
  - Free** - in this mode LFO 2 is never reset, so it could be at any phase when a note is pressed.
  - Single** - In this mode, the LFO will start when a new key is pressed, complete cycle and stop, but will not retrigger when a new note is triggered and one is already held.
- **Assign:** Pressing this button enters assign mode for the selected LFO. This is how we route the LFO's to parameters in the matrix. Once in this mode, simply turning the knob for the parameter that you would like the LFO to modulate, you will initially see keys 8 and 9 illuminated, showing there is currently 0 depth. As you continue to turn the parameter knob the LEDs will illuminate to show you the depth. Modulation is bipolar so twisting left achieves negative amounts and twisting right achieves positive amounts.

Tip: Make sure you exit assign mode once finished to avoid filling up all of the mod slots with undesired modulations!
- **MIDI Sync:** When holding the SHIFT key and pressing the EG SELECT button you can enable/disable the LFO's 'MIDI sync mode': when this mode is on, the LFO is synced to the current MIDI clock tempo.
- **LFO2:** This button switches which LFO we are controlling. By default we have access to LFO 1 and once pressed the Assign, Rate, Depth and Mode will represent LFO2.

SKULPTsynth SE has some very flexible voicing and MIDI options

- **Oct +/-** : These buttons control the key range available along the Touch Pads.

Tip: You can use this while holding notes to access unavailable notes. Particularly handy when used in conjunction with Chord mode.

- **Spread**: This introduces additional oscillators to achieve unison and stacked octaves, intervals and chords. In the first half of the dial, Wave 1 and Wave 2 are split into individual oscillators and spread out over the frequency spectrum to create a fat unison sound. This effect is increased up to the center position. Past half way, the oscillators arrange themselves into chord shapes. A huge variation of chords can be created with this control in conjunction with OSC2 detune.

Note: The average level of the sound will be lower when using the SPREAD control. This is because the combining oscillators are phasing in and out and not constantly re-enforcing each other as they would if the spread is set to zero.

- **Chord**: Holding Shift and pressing this button while holding a chord saves this chord. This chord can then be played from a single note trigger until the chord is changed, or chord mode is disabled. To change a chord, simply turn Chord mode off and repeat the process holding your new chord shape.
- **Transpose**: Holding Shift and pressing this button enters Transpose mode. Here you can directly transpose the pitch of both oscillators using the touch pads. Pad number 8 is the default position. Pads 7-1 transpose down 1 semitone per pad and pads 9-16 transpose up 1 semitone per pad.

Note: Using transpose will not trigger a new note. If you are using low EG settings you may not notice the change. This can be used to great effect while sequencing Skulpt from its Arp or Seq or from external sources.

- **Glide**: This parameter controls the speed with which the oscillators change their pitch, 'sliding' from one note to the next one pressed. Positive values will achieve normal always active glide and negative amounts will achieve fingered glide and will only glide if another note is already held. In MONO mode, envelopes will be retriggered with every note when the glide control is centred. Moving the control in either direction will enable legato mode, where envelopes are triggered only for the first note in a note stack.

- **Arp**: Pushing this button enables and disables the Arpeggiator. (See Arpeggiator section)
- **Seq**: Pushing this button enters and exits Sequencer mode. (See Sequencer section)
- **Voice**: This button selects which voice mode the patch is in. In Mono (1) all 32 oscillators are stacked in a single voice. In Duo (2) there are 2 voices with 16 oscillators stacked across each. In Poly (4) we have 4 voices with 8 oscillators per voice.
- **Sustain**: Holding Shift and pressing this button will sustain any notes played and is indicated by a flashing LED below.
- **Sustain Latch Mode**: Holding the SHIFT button and holding the ARP button for one second (until the ARP LED flashes) will enable Sustain 'Latch Mode' - press and release a note / chord to sustain it, press a new note / chord to overwrite the existing one. This also provides the classic arpeggiator 'Hold' functionality.

SKULPTsynth SE features two built in effects, a waveshaping distortion and a delay.

- **Distortion:** When holding the SHIFT key this encoder allows us to control the Distortion amount. The distortion is a waveshaping overdrive and as such is incapable of bit-crushing effects.
- **Delay:** When holding the SHIFT key this encoder allows us to control the Delay amount within this patch. This parameter affects the Dry/Wet mix of the of the delay audio effect at the end of the audio signal chain. When set to minimum, only the dry signal will be heard. When set to maximum, only the delayed signal will be heard.
- **Time:** When holding the SHIFT key this encoder allows us to control delay Time of the Delay effect, from 0.022 to 750ms.
- **Feedback:** When holding the SHIFT key this encoder allows us to control Delay Feedback. This sets the amount of delayed audio signal fed back into the delay input. When at the fully left position, only the first delayed signal will be heard. All the way to the right, almost the entire level of the delayed signal is fed back into the delay. This can be used to create a wide array of effects from an echo or reverb-type effect, to noise and metallic sounds.
- **Sync:** When holding the SHIFT key this button allows you to select which (if any) of the two LFO's or Delay's frequency or time should be syncopated to BPM (Extrenal or Internal clocks) you can cycle through every combination. This will snap the frequency or time to the closest division of the tempo you're working with and turning the encoder will cycle through divisions.

SKULPT synthiser has a comprehensive Modulation Matrix with 8 Slots, 8 Modulation Sources and 37 Modulation destinations.

These Mod slots can be used to assign any combination of modulation sources to destinations, meaning that 1 modulation source can be assigned to 8 different destinations, or 8 modulation sources can be assigned to a single destination, or any other combination thereof.

You cannot make the same assignment twice, each mod slot must be unique.

The Mod Matrix on Skulpt is additive - Modulation values are added or subtracted from the modulated parameter value and limited to the parameter range. If a parameter is at 0, negative modulation values will not be audible until the parameter value is increased. The opposite is true for parameters at max value.

All modulation depths are bipolar, meaning sources can be inverted using negative depths.

When multiple mod slots are assigned to the same destination, the modulation from all assigned slots is summed and limited before being applied.

Not all source to destination combinations are valid e.g. you cannot assign a polyphonic modulation source to a monophonic destination.

Valid combinations are listed here:

Parameter	LFO1	LFO2	MOD-EG	NOTE	VELO	AFTT	MODW	CC
Wave 1								
Wave 2								
Mix								
Global Pitch								
Osc1 Pitch								
Osc2 Pitch								
FM								
LFO1 Rate		X	X	X	X			
LFO2 Rate								
LFO1 Shape	X	X	X	X	X			
LFO2 Shape		X						
LFO1 Depth	X	X	X	X	X			
LFO2 Depth		X						

## Modulation

Parameter	LFO1	LFO2	MOD-EG	NOTE	VELO	AFTT	MODW	CC
Cutoff			X					
Reso								
Morph								
FEG Amount			X					
FEG Attack			X					
FEG Decay			X					
FEG Sustain			X					
FEG Release			X					
AEG Amount			X					
AEG Attack			X					
AEG Decay			X					
AEG Sustain			X					
AEG Release			X					
MEG Amount			X					
MEG Attack			X					
MEG Decay			X					
MEG Sustain			X					
MEG Release			X					
Distortion								
Delay		X	X	X	X			
Time		X	X	X	X			
Feedback		X	X	X	X			
Spread								
Glide			X					

### Scaling

LFO1 and LFO2 are scaled such that if they are assigned with maximum depth and the modulated parameter is at its centre value, the full parameter range will be modulated.

All other modulation sources are scaled such that if they are assigned with maximum positive depth and the modulated parameter is at 0, the full parameter range will be modulated.

## Modulation

On SKULPTsynth SE each modulation source has its own dedicated assign button on the front panel. Assign buttons can be latched so you don't have to hold them while assigning modulation destinations or accessing shift functions! Slots can also be easily muted or cleared by entering the MOD SLOTS mode.

- **MEG:** Similar to the Assign button, this button allows us to assign which parameters the Mod-EG affects in the matrix. After pressing simply begin twist the knob that you would like the Mod-EG to modulate you will see touch pads 8 and 9 illuminated showing their is no modulation as you continue to twist the LEDs will illuminate to show you depth. Modulation is bipolar so twisting left achieves negative amounts and twisting right achieves positive amounts.
- **Note:** This button allows you to assign a bipolar amount of keytracking modulation to a selected destination: at positive values, the higher the note you press, the higher the modulation value.
- **Velo:** This button allows you to assign a bipolar amount of velocity modulation to a selected destination: at positive values, the harder / faster the note you press, the higher the modulation value on the selected destination.
- **Modw:** When holding the SHIFT key this button allows you to assign a bipolar amount of mod wheel modulation to a selected destination  
 Tip: Assign an LFO to control Tune. Reduce the depth of the LFO and assign the Modw to the depth (+or-) adjust rate to taste for that classic mod wheel vibrato!
- **Aftt:** When holding the SHIFT key this button allows you to assign a bipolar amount of monophonic aftertouch modulation to a selected destination.
- **Ext:** When holding the SHIFT key this button allows you to assign a bipolar amount of External Expression (MIDI CC 11) to a selected destination
- **Mod Slots:** When holding the SHIFT key this button allows you to observe and edit the modulations used within a patch using the 16 touch pads. Pads 1-8 represent each modulation slot, they can be enabled or disabled. Pads 9-16 will clear the corresponding slot 1-8 when held down for a certain time.

### Modulation LEDs

- Entering an assign mode while on the mod edit page will flash all slots currently assigned from that source.
- When assigning a modulation and adjusting the assignment depth, the led for the modulation slot is flashed.
- If you try to enter an invalid or duplicate modulation the 16 touch pad LEDs will all flash together.

## Arpeggiator

SKULPTsynth SE features an arpeggiator with division, direction, octave, bipolar swing and sustain controls

The speed of the arpeggiator is controlled by the current clock which can either be received from the sync in port, external MIDI or from the internal clock in SKULPT.

- **Tempo:** This controls the tempo of the arpeggiator and sequencer.
- **Swing:** This allows you apply swing to the arpeggiator. A positive value delays the even step, however a negative value brings the even step forward in time.

Note: assigning modulation to the Tempo / Swing knob will control the Global Tune of the oscillators.

The arpeggiator can be enabled using the dedicated button in the keyboard section labelled ARP.

However, when this button is held down the 16 touch pads can be used to edit the arp parameters:

- **Division:** Pads 1-8 select the division or note length of the arp. The available divisions are 1/32 (demi-semi-quaver), 1/24 (semi-quaver triplets), 1/16 (semi-quaver), 1/12 (quaver triplets), 1/8 (quaver), 1/6 (crotchet triplets), 1/4 (crotchet) and 1/2 (minum)
- **Direction:** Pads 9-12 select what order the held notes are played back in. There are 6 possible combinations, with FWD (forward), BACK (backwards), PEND (forwards then backwards) and then a toggle NOTE (note order vs played order).
- **Octave:** Pads 13-16 select how many octaves are played back from 1 to 4 octaves.
- **Sustain:** When holding the SHIFT key and pressing the ARP button this enables sustain. This allows you to keep the arpeggiator running without needing to hold the notes down.
- **Sustain Latch Mode:** Holding the SHIFT button and holding the ARP button for one second (until the ARP LED flashes) will enable Sustain 'Latch Mode' - press and release a note / chord to sustain it, press a new note / chord to overwrite the existing one. This also provides the classic arpeggiator 'Hold' functionality.

## Sequencer

SKULPTsynth SE has a realtime sequencer that can record up to 256 notes at midi clock resolution with 4 notes of polyphony. Overdub is automatic - simply keep adding notes when the sequencer is recording.

The sequencer also allows animation of 4 parameters as part of the sequence - simply move the parameter you wish to automate when the sequencer is recording. Overdub is automatic - moving a parameter that is already animated (when recording) will overdub the recorded animation. Sequencer note lane and animator lanes can be muted/cleared from the sequencer page.

- **Play:** Starts and stops the sequence.
- **Record:** When holding Shift this allows you to record enable and disable. If the sequence in't playing when you press record it will begin. You can enable or disable the metronome in the MODALapp or by holding SHIFT + PLAY until the record LED flashes for a short burst.
- **Quantise:** the realtime sequencer can be given a quantise value to ensure that played notes can be kept in time. The available values are OFF - 1/32 - 1/16 - 1/8. You can change the quantise value by holding PRESET and turning the TEMPO dial.

Like the arpeggiator the sequencer controls can be edited on the 16 touch pads by holding SHIFT and using the SEQ button. This button can be held down or latched to give access to the following parameters:

- **ANIM 1-4:** Pads 1-4 enable or disable the 4 rows of parameter animation.
- **Bar:** Pads 5-8 selects the length of the sequencer. The available lengths are 1 BAR, 2 BAR, 4 BAR and 8 BAR
- **Clear:** Pads 9-13 allow you to clear the current data in the 4 parameter animation rows and the note row.
- **Mute:** Pad 14 enables or disables the note row.
- **Hold:** Pad 15 holds the current sequencer step and repeats it, like a beat repeater. When the pad is released the sequencer carries on from the location it should have been before the step was repeated so it will still be in time.
- **Loop:** Pad 16 allows you to loop certain parts of the sequencer. When the pad is first pressed is the loop start point and when it is released becomes the loop end point. When a loop is active pressing pad 16 again will disable the loop.

The Sequence position LED will always cycle 1 - 16 over the current sequence length. Eg. if sequencer is set to 4 bars, it will take 4 bars for the sequencer LED to scroll from 1 to 16 (i.e. not steps) If sequencer is running, any sequencer length changes will only take affect at the beginning of a bar.

# Settings

---

## General

- **Clock Source:** Sets the clock source for the SKULPTsynth SE with the following available options: Internal, MIDI, Sync-In, Auto. If 'Auto' is selected then the SKULPTsynth SE will automatically use any detected clock source (prioritising Sync-In over MIDI) else it will use the internal clock. Please note that if 'MIDI' or 'Sync-In' is selected whilst there is no MIDI or Sync-In clock present then clocked-synced functions (sequencer, arpeggiator, delay FX, LFOs) may not work correctly or at all.

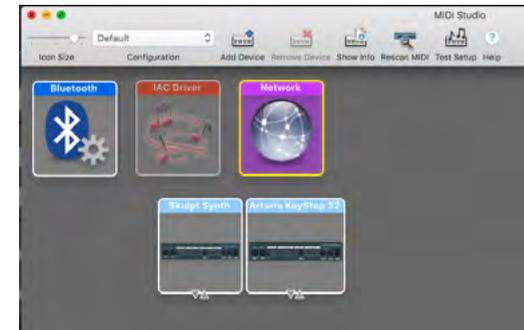
This can be set from the panel by holding the PLAY button whilst powering on the device and using the touch pads to select the source (1-4 = Internal, 5-8 = MIDI, 9-12 = Sync-In, 13-16 = Auto)

- **Global Tune:** Sets the global tuning of the SKULPTsynth SE with a range of +/- 1 semitone. You may need to adjust this if using the SKULPTsynth SE with other synthesisers that are not tuned to the standard tuning (e.g. old analogue synthesisers).
- **Touch Sensitivity:** Allows you to change the sensitivity of touch pad 1. A device reboot is required to apply any changes made to this setting.

# 04 MIDI

## MIDI

SKULPTsynth SE is a fully USB-MIDI class-compliant, meaning you can plug it into your computer, no drivers required, and gain access to a huge array of extra features. Simply plug in SKULPTsynth SE to a USB port and it will show up as a MIDI input and output device in any software that supports external MIDI devices.



On Mac OSX, SKULPTsynth SE will show up in 'Midi Studio', found in Applications > Utilities > Audio MIDI Setup. (Once open, select Window > Show MIDI Studio)



On Windows, SKULPTsynth SE will show up as a sound device in the Device manager.



Remember to enable the device input and output in your DAW's preferences.

# MIDI

## MIDI Channel

On SKULPTsynth SE the MIDI channel can be set from the front panel, or with the MODALapp.

Power on holding PRESET and the current midi channel will flash on one of the touch pads 1 - 16. Select a new MIDI channel using the buttons 1 - 16. Once selected release preset and Skulpt will return to its regular operation mode. You can also change MIDI settings in the settings tab of the MODALapp.

## MIDI Output

SKULPTsynth SE can sequence your DAW or any device that can send MIDI notes over USB, MIDI or CV clock using the touch pads, Sequencer or Arpeggiator.

All of the encoders on SKULPTsynth SE output MIDI messages (The appropriate CC message depending on the SHIFT state) This allows Skulpt to be used as a fully functional plug and play MIDI controller!

When a change is detected on any of the parameters, a CC message is sent out. See the MIDI implementation chart to find which parameters send which CC numbers. The touch pads also send the appropriate MIDI notes for the Octave range, Chord, Sustain and Arp mode that they are in.

## MIDI Input

SKULPTsynth SE can be played by sending it MIDI notes. This means you can use your DAW or any device that can send MIDI notes over USB, MIDI or CV clock to sequence Skulpt or control any of the parameters featured in the CC Implementation List

## MIDI Clock

Configure your DAW to send MIDI clock (Sync) to SKULPTsynth SE and it will automatically configure itself to work in time with your track tempo. When no clock is detected, the SKULPTsynth SE will continue to use whatever tempo it is configured to.

## MIDI Soft Thru

SKULPTsynth SE has two soft thru settings configurable from the app:

- DIN Thru - Forwards Midi received on din in to din out
- USB Thru - Soft interface mode which forwards midi received on din in to USB out, and USB in to din out

# MIDI

## Program Change

Sending a program change to SKULPTsynth SE will load the relevant preset.

## Sync

The analogue sync connections on SKULPTsynth SE are configured to use a 3.3v, rising edge, 1 pulse per 16th note signal. **PLEASE DO NOT EXCEED 5V INPUT AND OUTPUT.**

Any signal received by the SYNC IN connection is automatically forwarded to the SYNC OUT.

When running off internal clock or external clock SYNC OUT sends out the received clock.

Sync auto detects incoming clock / sync signals and will select these in priority order:

1) Sync, 2) Ext MIDI and 3) Internal.

Sync will fall back to the next available sync source in reverse priority order after a timeout of 3 seconds.

## Din MIDI Filters

SKULPTsynth SE has app-configurable midi filters on the Din input and output: Notes, CC, Program Change, Aftertouch, Pitchbend, Transport, Clock and Sysex  
By default DIN IN allows all message types  
By default DIN OUT allows all message types except clock.

## MIDI In Omni

MIDI can be made omni within the Settings tab of MODALapp. Omni mode makes SKULPTsynth SE listen to all midi channels, for all received midi (din or usb). Transmitted MIDI is still sent out on the current midi channel.

## Local

Enables / disables the internal keyboards' connection with the internal sound engine. If you are using SKULPTsynth SE with an external sequencer you may need to set the Local setting to 'Off' to eliminate the double-triggering of notes caused by MIDI loops / echoes.

This can be set from the panel by holding the NOTE button whilst powering on the device and using touch pads 1-8 to turn off this setting or touch pads 9-16 to turn on this setting.

## MIDI-In Octave Offset

Enables / disables the Keyboard Octave parameter from transposing MIDI-in notes.

### Arp / Seq Out

Enables / disables MIDI note output from the arpeggiator and sequencer. If this setting is enabled and the arpeggiator is active then the internal keyboard notes will not be transmitted to MIDI-out. Please note that MIDI-in notes that are being arpeggiated will also be transmitted to MIDI-out if this setting is enabled, which may cause MIDI loop / echo issues in complex MIDI setups.

This can be set from the panel by holding the ARP button whilst powering on the device and using touch pads 1-8 to turn off this setting or touch pads 9-16 to turn on this setting.

### Polychaining

Polychaining is available for up to 4 SKULPTsynth SE or SKULPTsynthesiser units together for up to 16 voices of polyphony:

- Connect desired master din out to first drone din in.
- Connect additional drones (Maximum 3 drones per master, 4 in total) in the same way, din out -> din in.
- Power on drone SKULPTsynth SE or SKULPTsynthesiser.
- Power on master SKULPTsynth SE or SKULPTsynthesiser holding down the VOICE button and select the number of drones on the Touch Pads.
- Release VOICE button. An LED animation should run across all SKULPT units and will disable the drone's front panel. The VOICE LEDs will be lit and the drone number flashing on the touch pads.

## MIDI CC Implementation Chart

Function	CC	Values
Seq Load	0	0 - 63
Modulation Wheel	1	"
Glide	5	0 - 2.5 seconds, exponential
Headphone Volume	7	Silence - full volume
Voice Mode	9	0 - 42 = Mono; 43 - 85 = Duo; 86 - 127 = Poly;
Expression Pedal	11	"
Distortion	12	Dry - Wet
Delay	13	Dry - Wet
Delay Time	14	No Sync: 0 - 250 milliseconds / Sync: 8 steps, Longest delay time possible divided down
Delay Feedback	15	0% - 90%
Osc1 Wave	16	0 - 21 Sine / 22-42 Tri / 43-63 Saw / 64-127 PWM duty 50% - 5%
Osc2 Wave	17	0 - 21 Sine / 22-42 Tri / 43-63 Saw / 64-85 Square / 86-127 White Noise
Osc Mix	18	Osc1 - Osc2
FM Amount	19	0 - Full
Spread	20	0 - 63 Unison / 64 - 70 Major / 71 - 77 Minor / 78 - 84 Major 6th / 85 - 91 Sus 4th / 92 - 98 5ths / 99 - 105 5th + Oct / 106 - 112 Oct + 1 + 2 / 113 - 119 Oct + 1 - 1 / 119 - 127 Oct - 1 - 2
Chord Mode	21	0 - 63 = OFF / 64 - 127 = ON
FEG Attack	22	0 - 4 Seconds
FEG Decay	23	0 - 4 Seconds
FEG Sustain	24	0 - 1
FEG Release	25	0 - 4 Seconds
AEG Attack	26	0 - 4 Seconds
AEG Decay	27	0 - 4 Seconds
AEG Sustain	28	0 - 1
AEG Release	29	0 - 4 Seconds
Osc2 Course Detune	30	+/- 4 Octaves

## MIDI CC Implementation Chart

Function	CC	Values
Osc2 Fine Detune	31	-/+ 1 Semitone
FEG Amount	32	63 (0) +/- 63
Morph	33	0 = LP / 64 = BP / 127 = HP
Cutoff	34	0Hz - 22kHz
Reso	35	None - Full
LFO1 Rate	36	NO SYNC: 0-127 = 0.02Hz - 32Hz SYNC: 0-7 = 1/16 / 8-15 = 1/8 / 16-23 = 3/16 / 24-31 = 1/4 / 32-39 = 3/8 / 40-47 = 1/2 / 48-55 = 3/4 / 56-63 = 1 / 64-71 = 3/2 / 72-79 = 2 / 80-87 = 3 / 88-95 = 4 / 96-103 = 6 / 104-111 = 8 / 112-119 = 12 / 120-127 = 16
LFO1 Depth	37	63 (0) +/- 63
LFO1 Shape	39	0-32 Sine to Triangle / 33-64 - Triangle to Sawtooth / 65-96 - Sawtooth to Square / 97-127 - Square to Sample and Hold
Octave	40	Octaves -2 to +4
MEG Attack	43	0 - 4 Seconds
MEG Decay	44	0 - 4 Seconds
MEG Sustain	45	0 - 1
MEG Release	46	0 - 4 Seconds
LFO2 Rate	47	NO SYNC: 0-63 = 0-32Hz Free / 64-71 Root/8 / 72-79 Root/4 / 80-87 Root/2 / 88-95 Root / 96-103 Root*1.5 / 104-111 Root*2 / 112-119 Root*2.5 / 120-127 Root*3 SYNC: 0-7 = 1/16 / 8-15 = 1/8 / 16-23 = 1/4 / 24-31 = 1/2 / 32-39 = 1 / 40-47 = 5/4 / 48-55 = 2 / 56-63 = 4 (Cycles per beat)
LFO2 Depth	48	63 (0) +/- 63
MEG Amount	49	63 (0) +/- 63
LFO2 Shape	50	0-32 Sine to Triangle / 33-64 - Triangle to Sawtooth / 65-96 - Sawtooth to Square / 97-127 - Square to Sample and Hold
AEG Amount	51	63 (0) +/- 63
LFO1 MIDI Sync	52	0 - 63 = OFF / 64 - 127 = ON
Ring Mod	53	0 - 63 = OFF / 64 - 127 = ON
LFO2 MIDI Sync	54	0 - 63 = OFF / 64 - 127 = ON
Delay MIDI Sync	55	0 - 63 = OFF / 64 - 127 = ON

## MIDI CC Implementation Chart

Function	CC	Values
LFO1 Mode	56	0-41 Retrigger / 42-83 Free / 84-127 Single
LFO2 Mode	57	0-41 Retrigger / 42-83 Free / 84-127 Single
Arp Status	58	0 - 63 = OFF / 64 - 127 = ON
Arp Octave	59	0 - 31 10Oct / 32-63 20Oct / 64-95 30Oct / 96-127 40Octaves
Arp Direction	60	0-20 = Forwards, 21-41 = Backwards, 42-62 = Pendulum, 63 - 83 = Note Forwards, 84 - 104 = Note Backwards, 105-127 = Note Pendulum
Arp Division	61	Value / 16 = 1/32nd, 1/24th, 1/16th, 1/12th, 1/8th, 1/6th, 1/4th, 1/2nd
Velo Depth	62	63 (0) +/- 63
Note Depth	63	63 (0) +/- 63
Sustain Pedal	64	0 - 63 = OFF / 64 - 127 = ON
Aftertouch Depth	65	63 (0) +/- 63
Ext Depth	66	63 (0) +/- 63
Sequence Length	67	0 - 31 = 1 Bar / 32-63 = 2 Bars / 64-95 = 4 Bars / 96-127 = 8 Bars
Sequence Hold	70	0 - 63 = OFF / 64 - 127 = ON
Sequence Loop	71	To Skulpt: 127 sets loop start point, 0 sets loop stop point. From Skulpt: 127 is currently looping, 0 is not looping
Transpose	75	-24 to +36 sent as (value + 24) * 2
Swing	78	0 - 127
Anim 1 CC	80	CC number of new destination
Anim 2 CC	81	CC number of new destination
Anim 3 CC	82	CC number of new destination
Anim 4 CC	83	CC number of new destination
All Envelope Attack	84	0 - 4 Seconds
All Envelope Decay	85	0 - 4 Seconds
All Envelope Sustain	86	0 - 1
All Envelope Release	87	0 - 4 Seconds

## MIDI CC Implementation Chart

Function	CC	Values
Mod Slot 1 Depth	88	63 (0) +/- 63
Mod Slot 2 Depth	89	63 (0) +/- 63
Mod Slot 3 Depth	90	63 (0) +/- 63
Mod Slot 4 Depth	91	63 (0) +/- 63
Mod Slot 5 Depth	92	63 (0) +/- 63
Mod Slot 6 Depth	93	63 (0) +/- 63
Mod Slot 7 Depth	94	63 (0) +/- 63
Mod Slot 8 Depth	95	63 (0) +/- 63
ModW Depth	96	63 (0) +/- 63
Mod Slot 1 Source	101	0 - 7
Mod Slot 2 Source	102	0 - 7
Mod Slot 3 Source	103	0 - 7
Mod Slot 4 Source	104	0 - 7
Mod Slot 5 Source	105	0 - 7
Mod Slot 6 Source	106	0 - 7
Mod Slot 7 Source	107	0 - 7
Mod Slot 8 Source	108	0 - 7
Mod Slot 1 Dest	101	0 - 36
Mod Slot 2 Dest	102	0 - 36
Mod Slot 3 Dest	103	0 - 36
Mod Slot 4 Dest	104	0 - 36
Mod Slot 5 Dest	105	0 - 36
Mod Slot 6 Dest	106	0 - 36
Mod Slot 7 Dest	107	0 - 36
Mod Slot 8 Dest	108	0 - 36

## MIDI CC Implementation Chart

Function	CC	Values
All Sound Off	120	-
Reset All Controllers	121	-
All Notes Off	123	-
Omni Off	124	-
Omni On	125	-

MIDI Polyphonic Expression (or MPE) is a method of using MIDI to enable expressive electronic musical instruments to control multiple dimensions of sound polyphonically. In MIDI, channel-wide messages (such as pitch bend, CCs, and channel aftertouch) are applied to all notes being played on a single channel; therefore, in MPE each note is assigned its own channel so that those messages can be applied to each note individually.

An MPE instrument typically has three dimensions of expression / control – left-right (X-axis); front-back (Y-axis); and pressure (Z-axis) – each axis can be mapped to various parameters of sound and be applied on a per-note basis.

SKULPTsynth SE is an MPE-compatible synthesiser, which means any valid MPE instrument can control multiple parameters of SKULPTsynth SE's sound engine polyphonically. The majority of the SKULPTsynth SE parameters can be controlled by MPE.

### Setting up MPE on SKULPTsynth SE

Enabling SKULPTsynth SE to respond to MPE involves the following steps:

1. Turn on MPE Mode. This can either be done on the SKULPTsynth SE device or on MODALapp. To set it on the device:
  - With SKULPTsynth SE powered off, hold the MEG button.
  - Power on the device and wait for the power-on animation to finish.
  - Press any touch pad in the range of 9-16 to turn on MPE Mode, or press any touch pad in the range of 1-8 to turn off MPE Mode. The touch pad LEDs will show the selected mode.
  - Release the MEG button once selected the MPE mode.
2. Using MODALapp, set 'MPE Master Channel' to match that of your MPE instrument. Your MPE instrument may refer to this as its 'MPE Zone' – 'Lower Zone' uses channel 1 and 'Upper Zone' uses channel 16. Some MPE instruments may not specify a Master Channel / Zone – in this case the most likely value to use here is '1'. Please refer to the MPE instruments settings or documentation for more information.
3. Using MODALapp, set 'MPE Number of Channels' to match that of your MPE instrument. Some MPE instruments may not specify a Number of Channels – in this case the most likely value to use here is '15'. Please refer to the MPE instruments settings or documentation for more information.
4. Using MODALapp, set 'MPE Pitch Bend Range' to that of your MPE instrument. Your MPE instrument may refer to this as its 'Pitch Bend Sensitivity'. Some MPE instruments may not specify, or use, a fixed Pitch Bend Range – in this case use this value to set your preferred semitone range of the MPE X-axis. Please refer to the MPE instruments settings or documentation for more information.

Each MPE dimension is mapped to the SKULPTsynth SE sound engine as follows:

- Left-right / X-axis (sent as MIDI Pitch Bend) – This controls the pitch of the note, with the range set using the 'MPE Pitch Bend Range' global setting (see above).
- Front-back / Y-axis (sent as MIDI CC 74) – This controls the SKULPTsynth SE Mod Wheel modulation assignments.
- Pressure / Z-axis (sent as MIDI Channel Aftertouch) – this controls the SKULPTsynth SE Aftertouch modulation assignments.

As the MPE Y and Z dimension assignments are built into SKULPTsynth SE's existing modulation matrix, these assignments are saved and recalled with each patch.

### Using MPE on SKULPTsynth SE

If using MODALapp / MODALplugin please ensure that you are running the version (or above) of MODALapp / MODALplugin released with SKULPTsynth SE firmware v2.0 to ensure correct communication between the app / plugin and the SKULPTsynth SE.

If using in conjunction with non-MPE MIDI controllers or software, please set their output MIDI channel to match the SKULPTsynth SE's 'MPE Master Channel' to ensure correct behaviour.

### SKULPTsynth SE MPE limitations:

- If Y+ or Aftertouch is assigned to any global sound parameters (LFO1 and Delay parameters) then these parameters will change for all notes / voices and only the latest / newest MPE note will have control of these parameters.
- MPE is not available in Polychain mode
- MPE expression data cannot be recorded into the SKULPTsynth SE sequencer, and any MPE notes recorded into the sequencer are converted in 'master' notes.

# 05

## Update

## Update

---

The firmware on SKULPTsynth SE can be updated remotely. This means that you will be able to update your SKULPTsynth SE to the latest version each time an update is released.

You can update SKULPTsynth SE using the MODALapp.

MODALapp is available for macOS, iOS, Windows, and Android.

To find the app on your platform, visit [www.modalelectronics.com/MODALapp](http://www.modalelectronics.com/MODALapp)

DO NOT run any other MIDI software that could be sending messages to SKULPTsynth SE during the update process.

# 06

## MODALapp

## MODALapp

MODALapp adds visual feedback for SKULPTsynth SE and access to a handful of extra settings outlined above. All parameters are accessible from a single interface split into 4 tabs.

- All UI parameters accessible from a single interface
- Editor page to quickly view and edit the current patch
- Controller page featuring an on screen MIDI controller & quick access to 16 assignable parameters
- Sequencer page to manage and edit sequencer settings, record parameter automation and enable/disable sequencer tracks
- Patches and Banks can be stored locally into the banks provided, organised using the toolbox and imported or exported locally or to the SKULPTsynth SE
- Settings page to configure MIDI settings and update the firmware

MODALapp is available for macOS, iOS, Windows, and Android.

To find the app on your platform, visit [www.modalelectronics.com/skulpt](http://www.modalelectronics.com/skulpt)



## Connecting devices

MODALapp can be attached to an iPad using a Camera Connection kit, or an Android device using a USB OTG (On-the-go) adapter.

NOTE: If you wish to use more than one USB device with your tablet, phone or computer, or in some cases your mobile device may not be powerful enough to power SKULPTsynth SE please connect SKULPTsynth SE and any other devices through a powered USB hub.

MODALapp can only be connected via USB MIDI and not by MIDI DIN.

Install and open MODALapp. You will see a splash screen until a SKULPTsynth SE has been detected, at which point you will see the Editor page appear.

## Playing Skulpt

At this point, you can play your SKULPTsynth SE with any MIDI controller! MODALapp forwards all incoming MIDI to SKULPTsynth SE automatically. Just make sure that your MIDI controller is sending to the same MIDI channel that the SKULPTsynth SE is assigned to.



This is the main tab for patch design / editing. You will find oscillator, filter, envelope, LFO, arpeggiator, sustain, modulation and effects sections here.

Switch between viewing the currently loaded patch or sequence with the PATCH / SEQ buttons on the top left hand side.

The currently selected patch or sequencer is shown at the top. You can get to the preset management page by clicking on the preset name. There are also options for previous or next preset, init preset and randomise.

To save a preset first click the save button. You can then select the slot you would like to save the new preset with the - / + buttons. You can change the name of the preset by clicking on the preset name. Finally click either SAVE again to confirm or EXIT to discard any name / slot changes.

## Controller Page



This page provides a MIDI controller for playing your SKULPTsynth SE with 16 assignable macro controls.

You can select the number of octaves of playable on screen keyboard has using the 3, 2 or 1 buttons.

Below this is the Keyboard section where you can access pitch bend, modwheel, transpose, chord on / off & set as well as Arp and Sustain on / off as mentioned above.

You will find the complete arpeggiator (and some sequencer) options to the right of here as well as a quick access macro bank of 16 configureable encoder.

Arpeggiator section - Here you can set the note division (1/32, 1/24, 1/16, 1/12, 1/8, 1/6, 1/4 or 1/2), direction conditions (Fwd, Back, Pend or Note) the octave range of the arpeggiator (1oct, 2oct, 3oct, 4oct)

Global Arp & Sequencer options - Here you can toggle play and record of the sequencer as well as set the swing amount and tempo using either the tap tempo button or tempo slider.

## Sequencer Page



Here you can access the complete sequencer and animation options as well as the global arpeggiator and sequencer options from the previous page.

You have an animator grid that you can click and drag across to draw. The Animator is basically another Sequencer for parameters: when running, each sequence will run through its own animation cycle.

You can select which of the 4 animation rows you are looking at, record enable that row, choose its destination and clear its contents. To the right of this you can clear the sequences notes, toggle mute, hold and loop, select the length of the sequence and sequence quantise.

You also retain the Keyboard, global Arp & Sequencer options, playable keyboard on this tab.

## Preset Management Page



This page allows you to backup, curate and restore your saved presets for both patches and sequencer. The interface is split into 3 sections:

**SKULPT SYNTHESISER** - On the right are the current presets on your SKULPTsynth SE, there are 8 banks of 16 patches and 4 banks of 16 sequences.

**Local** - On the left hand side you will find the local storage section. These are presets that are saved to your local storage on the device MODALapp is running on.

**Toolbox** - The toolbox is an area you can drag patches in to currate new banks and then save them to your SKULPTsynth SE or add to local storage.

The interface is drag'n'drop so you can move presets or banks around to different slots by first clicking on them and then dragging them to the desired location.

Local patches or banks can be imported/exported by right clicking on a preset or bank button. Presets can also be quickly renamed by double clicking on the preset buttons.

## Settings Page



In the Settings Tab there are options for updating your SKULPTsynth SE to the latest versions. MODALapp will notify you when a new update is available.

Finally there is access to the other settings available on SKULPTsynth SE. For a list of all settings available please read the MIDI section and Settings section of this manual.

### **My SKULPT doesn't turn on?**

When you provide power to the SKULPTsynth SE and power on using the power switch, you should see LEDs light up. If this isn't the case, please check the following:

- Check that the switch is selecting the correct power source, USB or BAT (6xAA batteries)

If powering by USB:

- Unplug and plug the USB cable back in.
- Try using a different USB cable.
- Check that you are using a USB port on the computer or powered USB hub, rather than a keyboard or a non-powered hub, which may not be able to provide enough current.

If powering with a batteries:

- Check that the batteries are fully charged and in the correct orientation.

### **My SKULPT turns on and looks like it's working, but there's no sound?**

- Check that all the connectors are attached properly.
- Check that your headphones or line connections are connected properly and working as they should (Testing with another device to provide sound is a good way to do this).
- Try sending MIDI to the synth to identify if it is an issue with the touch pads.

### **The SKULPT doesn't show up as a MIDI device?**

SKULPTsynth SE uses a class-compliant MIDI over USB connection, which means most operating systems will recognise it as a MIDI device without the need to install additional drivers. If you're not seeing 'Skulpt Synth' listed as a MIDI device, check the following:

- Check to see if the device shows up on your computer, as described in the MIDI section of this manual.
- Some systems may take some time to search for any required drivers, simply wait until your operating system has finished this process.
- Check that your DAW or other software has enabled MIDI input and output to 'Skulpt Synth'. This is usually found in Preferences > MIDI.
- Check that the USB cable is not faulty, and that the USB socket on your computer works properly.
- Make sure that the USB sockets are free from dust or dirt.

## **My SKULPT doesn't respond to MIDI**

Please check that you have SKULPTsynth SE set to the same MIDI channel that you are sending MIDI to.

Also please check the current MIDI filters in the MODALapp if using a DIN connection.

## **The touch pads don't seem to work properly or the sound keeps re-triggering?**

The touch pads work through 'capacitive sensing', detecting the presence of your touch in a similar way to your smartphone screen. If you are having difficulty using the touch pads, it's likely to be to do with either your skin contact, or the power source.

- First ensure that all connectors are attached properly and that the synth is not damaged.
- Ensure your hands are clean and dry and that you are not wearing any gloves.
- Try powering the SKULPT from an alternate power source. Powering from batteries and listening on headphones will isolate the synth from any other equipment that may be affecting the SKULPT. If this fixes the issue, try unplugging any other equipment that may be affecting the power, such as your laptop charger.
- Try sending MIDI to the SKULPT to identify if it definitely is an issue with the touch pads,

## **My SKULPT makes erratic noise when powered off when powered by a USB power adaptor or batter pack**

Some USB power adaptors (phone chargers in particular) and battery packs try to conserve energy by switching off when not in use. To enable them to spring instantly to life when something is connected, they trickle a tiny bit of current into the data lines of the USB. The idea being that if a device is detected then the power supply turns on. For the SKULPT, even though the power is switched to OFF, the charger / battery bank continues to supply power into parts of the SKULPT circuitry.

If you are using a power supply source (charger, battery pack etc.) with auto sensing, you may need to physically disconnect the SKULPT from the power source when switching off as the power source itself may continue to power the unit via the data lines after switching off.

**For any other issues please check our knowledgebase on our support website or email [support@modalelectronics.com](mailto:support@modalelectronics.com)**

## Warranty Information

### Warranty Statement

- The Modal warranty period for any product purchased is 12 months from the date of the original purchase.
- The warranty is not transferable to a second user.
- Modal products are built using the latest manufacturing technology, tested to the highest possible standards and by using premium components this should result in providing you with reliable performance for many years.
- **The warranty is return to base, meaning the unit must be returned, carriage paid, to the Dealer you purchased the unit from or the exclusive territory Distributor responsible for the country in which you purchased the product.**
- Some of the products returned under warranty are found not to exhibit any fault at all when they are retested at our Service Centre's so it's always useful to contact our Support team first to try to avoid inconvenience to you at [support@modalelectronics.com](mailto:support@modalelectronics.com)
- If you suspect that your unit is suffering from a component or manufacturing defect during the warranty period please contact either Modal support or the dealer that you purchased the Modal product from.
- In the event of a component or manufacturing defect becoming evident during the warranty period, Modal will ensure that the product is repaired free of charge or replaced.
- Whilst this warranty is provided by Modal, the warranty obligations are fulfilled by the exclusive territory Distributor responsible for the country in which you purchased the product.
- The Dealer will advise you of the appropriate procedure for resolving the warranty issue.
- In every case it will be necessary to provide a copy of the original invoice or Dealer purchase receipt to the Distributor.
- In the event that you are unable to provide proof of purchase directly then you should contact the Dealer from whom you purchased the product and attempt to obtain proof of purchase from them. The Dealer | Distributor will then advise the procedure to follow.
- This limited warranty is offered solely to products purchased from an Authorised Modal Dealer (defined as a Dealer which has purchased the product directly from Modal in the UK, or one of our Authorised Distributors outside the UK). Please note that if you purchased the product from outside of your country of residence you must return the unit to the original point of purchase for repair.
- The Modal warranty term is additional to any statutory rights in the country of purchase or as offered by the dealer at the time of purchase.

## Warranty Information

### What is meant by a Manufacturing Defect?

- We define this as a defect in the performance or specification of the product as described and published by Modal.
- A Manufacturing Defect does not include damage caused by post-purchase shipping, storage or careless handling, nor damage caused by misuse.

### Warranty Limitations

- This warranty does not cover damage resulting from accident or misuse.
- The warranty is void unless repairs are carried out by an authorised service centre.
- The warranty is void if the unit has been modified other than at the manufacturer's instruction.
- The warranty does not cover components which have a limited life, and which are expected to be periodically replaced for optimal performance.
- We do not warrant that the unit shall operate in any other way than as described in this manual.

For further details please contact: [support@modalelectronics.com](mailto:support@modalelectronics.com)