YONAC KASPAR
MULTI-ENGINE AUTOMORPHING SUPERSYNTHESIZER

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**Congratulations** and **Thank You** for choosing KASPAR Supersynthesizer. As one of the pioneers of iOS music, Yonac are proud to introduce our latest generation synthesis and audio processing technologies. We hope you will be satisfied with your choice, and enjoy countless productive hours filled with music and fun!

KASPAR is built on our latest Multi-Engine Automorphing SuperSynthesis (MASS) technology, and comes with superior quality stereo Yonac effects. It incorporates eight fully-featured, polyphonic synth engines that altogether are capable of up to 96 note polyphony.* KASPAR's enormous potential as a synth powerhouse is brought home by easy-to-use and powerful layering capabilities, as well as an innovative morphing/automorphing system that allows you to combine, switch or morph diverse synthesizer sounds in real time.

With a total of 24 oscillators, 8 arps, extensive modulation capabilities, dual FX busses, and many more advanced features, KASPAR is an enormously powerful synth that will certainly add to your arsenal of quality musical tools.

Musical Wishes,

The Yonac Team

* Device CPU and resource restrictions apply.

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# MORPH



By using the MORPH PAD in combination with the other parameters on the morph panel, you can obtain tons of new and dynamic sounds. You can achieve this **automatically** with the special algorithms provided by KASPAR, or **manually** by dragging a finger on the MORPH PAD.

Briefly, morphing happens when a given sound gradually and smoothly changes or joins with another sound. Being a multi-engine synthesizer, KASPAR's advanced morphing features let you combine and vary its synth engines' sounds in

completely fresh ways, opening totally new possibilities unavailable in most other synths.

The morphing system is organized into 4 morph groups (A, B, C, and D). Each synth engine can be assigned to one of the 4 morph groups. The MORPH PAD as well as other controls allow morphing among these groups.

- o <u>MORPH GROUPS ASSIGNMENT MATRIX</u>: Use the cells in this matrix to assign a synth engine to a particular morph group.

- o <u>MORPH PAD</u>: Depending on the morphing configuration, manually morph among groups or draw a path for KASPAR to automatically morph.

- o <u>MORPH PAD OSCILLOSCOPE</u>: KASPAR's audio output in the form of a continuous oscilloscope reading.

- o <u>MORPH ON</u>: Turn morphing on or off. In the off position, the parameters on the morphing screen have no effect on the sound.

- o <u>MORPHING CURVE</u>: Choose between CURVE 1 and CURVE 2 to specify the morphing 'feel' among the groups.

- o <u>X/Y/XY-SPEED</u>: Specify the amount of modulation for the morph. X specifies the width of modulation along the x-axis. Y specifies the height of modulation along the y-axis. XY-SPEED specifies the rate of modulation. Morph modulation can be used both in manual and in auto morphing modes.

- o <u>SYNC</u>: Enable BPM-synchronization of the XY-SPEED as well as the automorph READ SPEED.

- o <u>AUTOMORPH ON</u>: Turn automorphing on or off. When enabled, automorphing enables you to draw a path on the MORPH PAD, which KASPAR will follow in a manner specified by other automorphing parameters.

o <u>WRITE</u>: With the AUTOMORPH in ON state, enable WRITE to draw or make additions to an automorph path. When finished drawing, disable to prevent accidentally drawing further segments.

o <u>ERASE</u>: Erase the current automorph path.

o <u>READ SPEED</u>: Specify how fast the automorph path is traversed.

o <u>LOOP</u>: Specify loop mode for the automorph path reader.

o <u>AUTOMORPH MODE</u>: Specify the read-mode for the automorph path:
  o POLY: Each new note starts reading the path at the point specified by the LOOP parameter, independent of the path positions of the other audible notes.
  o POLY2: Like POLY, but also resets all the other notes' read positions on each key-off event.
  o GLOBAL: The automorph path is read continuously, without being retriggered by note-on or off events.
  o GLOBAL RESET: The automorph path is reset for all voices upon each note-on event.
  o GLOBAL RESET2: Like GLOBAL RESET, but the path is reset also on each note-off event.
  o GLOBAL LEGATO: The automorph path is reset only on the first note-on event, and runs continuously for all voices until all keys are released.

o VOL: The master volume control for KASPAR. It is linked to the Master Volume slider found on the LAYERS panel.

# LAYER



Use the sub panels of the LAYER screen to activate and mix synth engines, as well as to provide keyboard mappings and certain MIDI settings for each synth.

**BASIC**

- o POWER: Use this to turn a synth engine on or off. **NOTE**: If you are not using a particular synth engine, it is good practice to turn it off using the POWER button to conserve CPU resources. Using the MUTE or SOLO buttons does not turn a synth engine off, but only silences it.

- o VOL: The volume of a synth engine.

- o PAN: The stereo panning of a synth engine's output.

- o FX1: The amount of the synth engine signal sent to the FX1 bus.

- o FX2: The amount of the synth engine signal sent to the FX2 bus.

- o MUTE: Silence the output of the synth engine (does not turn the synth engine off).

- o SOLO: Silence all synth engines, except for the ones with SOLO enabled.

- o MASTER VOL: KASPAR final output volume.

**KB**

You can create keyboard regions, whether overlapping or mutually exclusive, for each synth engine on this sub panel.

- o TRANSPOSE: Transpose the output of a synth engine from 24 semitones down to 24 up.

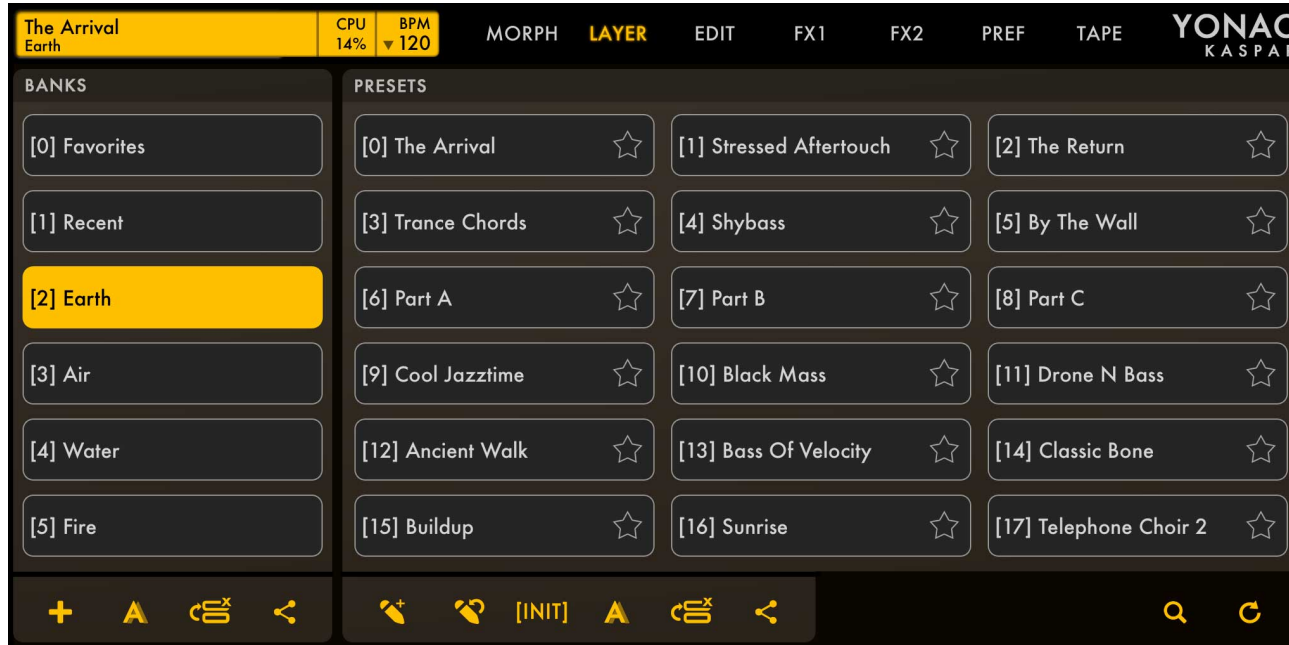- o DRIFT: Specify the amount of "detune" for a synth engine relative to other synth engines.

- o MIDI NOTE MIN: Specify the lowest MIDI note that the synth engine will accept. The synth engine will ignore MIDI notes lower than the one set here.

- o MIDI NOTE MAX: Specify the highest MIDI note that the synth engine will accept. The synth engine will ignore MIDI notes higher than the one set here.

- o MIDI NOTE IN CH: Specify the MIDI channel on which the synth engine will accept MIDI note messages.

## EXP

- o PITCH BEND: Specify the number of semitones that the pitch wheel will cause the synth's frequency to shift when moved in either direction. Additionally, select 0 to turn off pitch bending.

- o VELOCITY MIN/MAX: Specify the range into which raw MIDI velocity data will be mapped.

- o AFTERTOUCH MIN/MAX: Specify the range into which raw MIDI aftertouch data will be mapped.

- o MIDI SUSTAIN: When turned off, the synth engine will ignore MIDI sustain CCs (CC 64).

# PRESETS

| The Arrival<br>Earth | CPU<br>14% | BPM<br>▼120 | MORPH | **LAYER** | EDIT | FX1 | FX2 | PREF | TAPE | YONAC<br>K A S P A R |
|---|---|---|---|---|---|---|---|---|---|---|

**BANKS**

| [0] Favorites |
| [1] Recent |
| **[2] Earth** |
| [3] Air |
| [4] Water |
| [5] Fire |

**PRESETS**

| [0] The Arrival ☆ | [1] Stressed Aftertouch ☆ | [2] The Return ☆ |
| [3] Trance Chords ☆ | [4] Shybass ☆ | [5] By The Wall ☆ |
| [6] Part A ☆ | [7] Part B ☆ | [8] Part C ☆ |
| [9] Cool Jazztime ☆ | [10] Black Mass ☆ | [11] Drone N Bass ☆ |
| [12] Ancient Walk ☆ | [13] Bass Of Velocity ☆ | [14] Classic Bone ☆ |
| [15] Buildup ☆ | [16] Sunrise ☆ | [17] Telephone Choir 2 ☆ |

To load a preset: Select a bank and then select a preset to load.

NOTE: Some Bank and Preset operations may not be available in the Audio Unit version. You can access these options by opening the app instead.

**Bank Operations**

- o NEW BANK: Create a new, empty bank.

- o RENAME: Rename the selected bank.

- o EDIT: Enable reordering and deleting of banks.

- o SHARE: Display bank import/export options.

**Preset Operations**

- o NEW PRESET: Save the current synth settings as a new preset into the selected bank.

- o OVERWRITE: Save the changes made to the currently selected preset.

- o INIT: Load the basic 'INIT' preset. Useful when starting to write a new synth preset from scratch.

- o RENAME: Rename the selected preset.

- o EDIT: Enable reordering and deleting of presets.

- o SHARE: Display preset import/export options.

- o FAVORITE: Touch the star to add the preset into the Favorites bank. There can be up to 256 favorite presets.

## Other Operations

- o SEARCH: Search for a preset.

- o RESTORE FACTORY: Reinstall factory presets that come packaged with KASPAR.

## What's Saved in a Preset?

All the parameters found on MORPH, LAYER, EDIT, FX1, and FX2 screens. The BPM is also saved, but you can prevent it from being loaded when a preset is selected by turning on the BPM LOCK feature under the TEMPO SETTINGS dropdown.  Options in the PREFS menu are global and aren't saved into a preset.

# EDIT: SYNTH ENGINES' PARAMETERS

*Access and edit synthesis parameters for each synth engine.*

**Synth Engine Select Side Panel Buttons**

- Select a synth engine to edit.
- Mute the synth engine.
- Solo the synth engine.
- Press and hold to display patch load options for the synth engine.

## Oscillators



- o WAVE SELECT: Select oscillator waveform.

- o TRACKING: Select oscillator tracking mode. TRACK is the default mode. The two DRONE modes cause the oscillator to emit a static frequency independent of the keyboard note being played.

- o PHASE RESET: Reset the signal phase of all three oscillators for each new note.

- OSCILLATOR TUNING CONTROLS: Set oscillator octave, semitone and cent differentials.

- PW/TIMBRE: Specify the duty cycle of the Pulse waveform, if used. Specify the tonality of the custom waveforms that have a '(T)' next to their names.

- SYNC: (Oscs 2 & 3 only) Reset the phase of the oscillator (Slave) when Oscillator 1 (Master) starts a new period.

- RINGMOD: (Oscs 2 & 3 only) Set the amount of ring modulation from the oscillator into the preceding oscillator.

- VOLUME: Set the loudness of the oscillator.

- POLY/MONO: Choose polyphonic or monophonic operation for the specific synth engine.

- LEGATO: Enable legato operation for the specific synth engine.

- GLIDE: Set the portmanteau duration between successive notes.

- NOISE TONE: Alter the tonality of the noise generator.

- NOISE VOLUME: Set the loudness of the noise signal.

## Filter
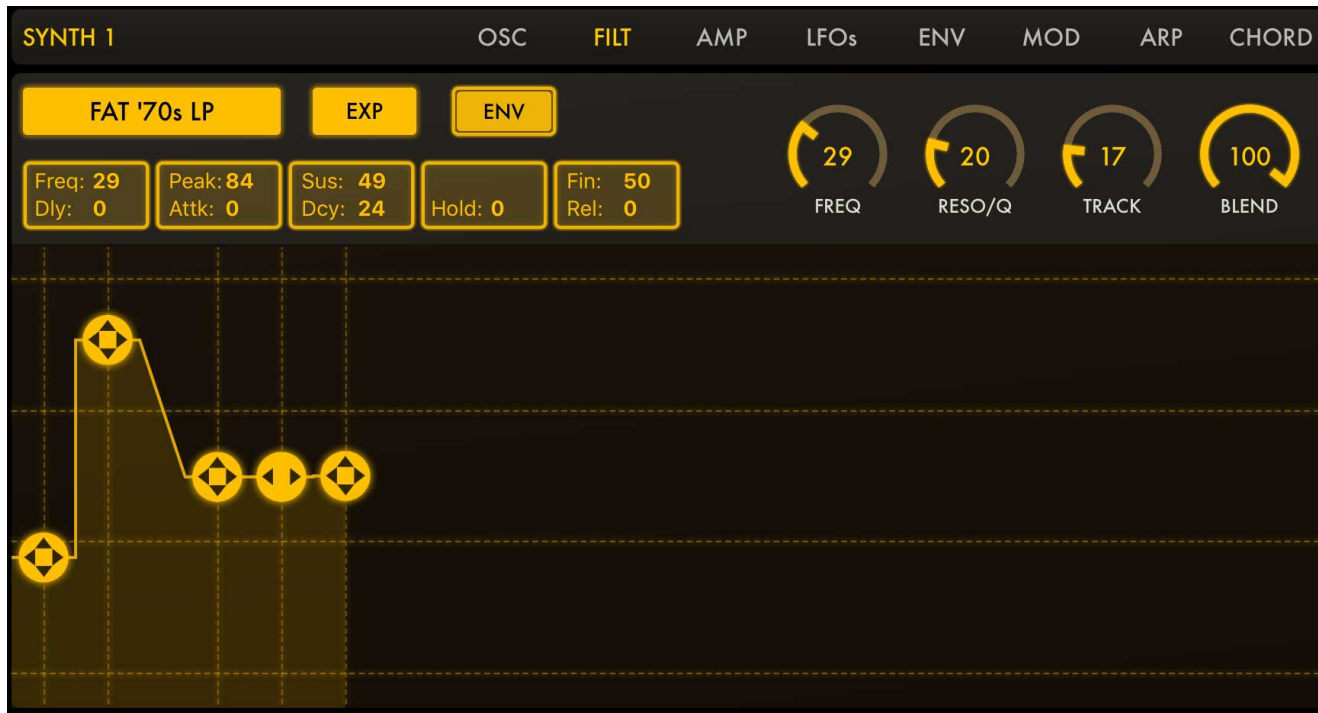


- o  FILTER TYPE: Select from a list of available filters.

- o  ENVELOPE CURVE: Choose between exponential (default) and linear envelope shapes.

- o  ENVELOPE ON: Turn on to activate envelope. If turned off, filter will operate at the fixed level indicated by the FREQ parameter.

o   FREQ: Specify the fixed filter frequency with envelope off. Specify the initial filter frequency with envelope on.

o   RESO/Q: Set the amount of resonance/emphasis for the selected filter. For the formant filter, set the 'timbre' of the vowel.

o   TRACK: Specify the amount of filter tracking along the keyboard.

o   BLEND: Specify the balance between filtered and dry signal.

**<u>Filter Envelope</u>**

o   DELAY: Drag horizontally to indicate the wait time between a note-on event and the start of the envelope's attack stage. Drag vertically to indicate the initial frequency at note-on.

o   ATTACK: Drag horizontally to indicate the duration of attack. Drag vertically to indicate the frequency at the end of the attack stage.

o   DECAY/SUSTAIN: Drag horizontally to indicate the duration of decay. Drag vertically to indicate the frequency at the end of the release stage (also known as the SUSTAIN level).

o   HOLD: Drag horizontally to indicate the wait time between a note-off event and the start of the envelope's release stage.

o   RELEASE: Drag horizontally to indicate the duration of release. Drag vertically to indicate the frequency at the end of the release stage.

**AMP**

Use the dADSHR envelope to alter the amplitude profile of a note being played.

- o DELAY: Drag horizontally to indicate the wait time between a note-on event and when the note starts becoming audible.

- o ATTACK: Drag horizontally to indicate the duration of the attack stage.

- o DECAY/SUSTAIN: Drag horizontally to indicate the duration of the decay stage. Drag vertically to indicate the SUSTAIN level reached at the end of the decay stage.

- o HOLD: Drag horizontally to indicate the wait time between a note-off event and when the envelope release stage starts.

- o RELEASE: Drag horizontally to indicate the duration of the release stage.

**MODULATION**

Multiple parameters of each voice can be modulated or controlled using a synth engine's LFOs, its Modulation Envelope, or external input such as MIDI velocity, aftertouch, or mod wheel.

The parameter ("TARGET") and its controllers ("MOD" or "CONTROL") are assigned together using the Modulation Matrix found on each synth's MOD panel. Here, you can also set the modulation amounts per target.

## LFO



After assigning an LFO to a target parameter on the MOD screen, you can vary certain LFO parameters here.

- o WAVEFORM: Select the LFO waveform.

- o TRIGGER MODE: Select the LFO trigger mode.
    - o CONT: LFO runs continuously.
    - o TRIG: LFO phase is reset at every note-on event.

- o SHOT: At every note-on event, LFO generates one period of its signal and stops.

- o KEYTRACKING: Enable the LFO's rate to change according to the newest note.

- o BPM SYNC: Activate BPM syncing of the LFO rate.

- o RATE: Set the speed of the LFO signal.

- o PHASE: Set the phase of the LFO signal.

- o PULSEWIDTH: (For pulse waveform only) Specify the duty cycle of the LFO pulse signal.

- o DELAY: (For TRIG and SHOT modes only) Specify the amount of time that the LFO signal takes to reach full amplitude after a note-on event.

## Sample and Hold

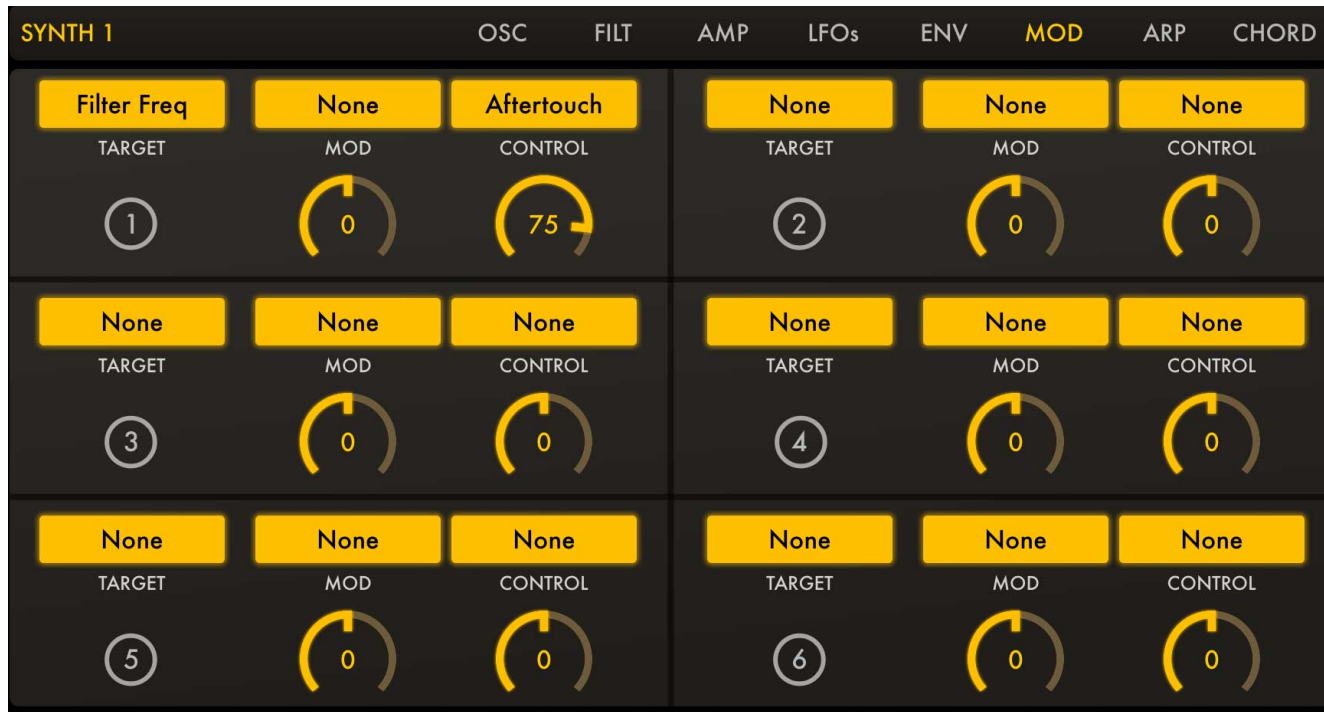KASPAR's LFOs have their own dedicated sample & hold modules configurable independently of the LFOs.

- o ON: Activate the sample & hold.

- o BPM SYNC: Enable BPM syncing of the sample & hold rate.

- o RATE: Set the rate at which new LFO samples are acquired.

- o SLEW RATE: Set the amount of "smoothing" between two successive LFO samples. By definition, increasing the SLEW RATE causes a more sudden jump between two LFO samples.

## ENV

After assigning the Mod Envelope to a target parameter on the MOD screen, you can vary certain Mod Envelope parameters here.

- o DELAY: Drag horizontally to indicate the time elapsed between a note-on event and the start of the attack stage.

- o ATTACK: Drag horizontally to specify the duration of the attack stage.

- o DECAY/SUSTAIN: Drag horizontally to indicate the duration of the decay stage. Drag vertically to indicate sustain level.

- o HOLD: Drag horizontally to indicate the amount of time for which the last envelope value is 'held' after a note-off event.

- o RELEASE: Drag horizontally to specify the length of the release stage.

## MOD



| SYNTH 1 | | OSC   FILT   AMP   LFOs   ENV   **MOD**   ARP   CHORD |
|---------|---|---|

| Filter Freq | None | Aftertouch | None | None | None |
|---|---|---|---|---|---|
| TARGET | MOD | CONTROL | TARGET | MOD | CONTROL |
| ① | 0 | 75 | ② | 0 | 0 |
| None | None | None | None | None | None |
| TARGET | MOD | CONTROL | TARGET | MOD | CONTROL |
| ③ | 0 | 0 | ④ | 0 | 0 |
| None | None | None | None | None | None |
| TARGET | MOD | CONTROL | TARGET | MOD | CONTROL |
| ⑤ | 0 | 0 | ⑥ | 0 | 0 |

Select up to six target parameters per synth to modulate. Each of the six cells of the Modulation Matrix represents a target-modulator signal pairing.

A target can be modulated by a modulation signal alone, such as an LFO or the Mod Envelope, or by a control signal alone, such as MIDI velocity or aftertouch. When a target is assigned both a modulator and a control, the control signal is used to vary the 'amplitude' of the modulator signal. This scheme provides a great degree of expression when playing live.

o   TARGET: Select a synth target parameter to modulate.

o   MOD: Select a synth signal source to modulate the target, such as an LFO or the Modulation Envelope.

o   MOD AMOUNT: Specify how much the modulator signal affects the target parameter.

o   CONTROL: If no modulator signal is selected, choose a control signal to directly modulate the target. If a modulator signal is selected, choose the control signal to vary the amplitude/amount of the effect that the modulator signal has on the target parameter.

o   CONTROL AMOUNT: Specify how much effect the control signal has on the target parameter or the modulator signal.

## ARP



- o ON: Turn the arpeggiator on or off.

- o MODE: Select the mode of operation for the arp. In LIVE mode, the arp will step through the notes currently pressed on the keyboard. In PROG mode, the arp will play a pre-programmed pattern when a key is pressed down; it will transpose the pattern with the MIDI note of the key. In PROG FIXED mode, the arp will play the pre-programmed pattern, but will not transpose the pattern.

- o ALGORITHM: Select the arp stepping pattern.

o   GATE: Specify length of each step relative to the arp note value.

o   SWING: Set the amount of rhythmic swing.

o   NOTE: Set the note value for the arp steps.

o   NOTE RPT: Specify the number of times a step is repeated before moving on to the next one.

o   OCT: Specify the number of octaves for the pattern to span.

o   OCT RPT: Indicate the number of times a pattern is repeated in each of the octaves set by the OCT knob.

*Arp Programming Area*

Provide a pre-programmed pattern for the arp by selecting notes. The pattern can then be triggered by the keyboard when the Arp is in the PROG or PROG FIXED mode.

## **CHORD**

The Chordmaker is used to construct and play chords of up to 5 notes (tonic + 4 configurable tones) by touching a single key.

o   ON: Activate Chordmaker.

o   CHORDMAP: Specify up to 4 additional tones per note to constitute a chord. The chord will be played when the keyboard key corresponding to the tonic is pressed

# FX BUSSES



KASPAR has two independent effects busses for extra power and versatility. The output of each synth engine can separately be sent to the FX1 or FX2 bus for further processing (the FX1 & FX2 send amounts are found in the LAYER -> BASIC sub panel). The effects currently turned on are applied to the synth signal in the order they appear on the screen, left-to-right. Simply drag the effects icons in the signal-flow area to change their order.

EFFECT ICON: Touch once to display the effect's control panel. Touch down and hold briefly to start dragging the

effect to a different position in the signal chain. Touch the power button icon to toggle the effect on or off without going to its control panel.

# TEMPO CONTROLS

o   BPM: Touch to display the BPM set options, including tap tempo.

o   TAP TEMPO: Tap a steady beat to set the BPM. It will take a second or two after the last tap for the reader to completely reset.

o   BPM Wheel: Set the BPM by dragging this wheel.

o   BPM LOCK: Enable the preset BPM data do be ignored upon future preset loads.

o   EXT CLOCK: Disable KASPAR's internal MIDI clock. When disabled, arp, metronome, and some BPM-synced parameters will not work, unless KASPAR is being controlled by an external or virtual MIDI clock from a third party app or device.

# MIDI

*Access global MIDI settings by pressing the PREF menu button and then selecting MIDI Settings.*

## MIDI IN ENABLE/DISABLE

Use these switches on the MIDI Settings menu to enable/disable external or virtual MIDI in.

## BLUETOOTH MIDI

With iOS device Bluetooth enabled, and an iOS compatible Bluetooth MIDI device in proximity, you can create a connection between KASPAR and the MIDI device by launching this settings panel and following the instructions.

## MIDI LEARN

Turn MIDI learn on or off via the PREF->MIDI SETTINGS->MIDI LEARN Switch. Select the rectangular overlay on the MIDI-learnable parameter you wish to assign a CC. Once selected, manipulate the knob, button or control on your connected MIDI device that you'd like to assign to the parameter. Alternatively, double tap the parameter on the KASPAR screen to display options for manual data entry. When finished, turn off MIDI LEARN and save your changes by launching the MIDI MAPS MANAGER (also in the MIDI Settings menu).

You can also map continuous control values to a specified range. With MIDI LEARN active, double tap a parameter to display advanced options. For continuous parameters, use the MIN and MAX fields to specify the range into which the CC value will map. For example, when MIN = 32 and MAX = 93, the value of 0 sent by the external controller will be mapped to 32, and 127 will be mapped to 93. Values between 0 and 127 will be mapped linearly to the interval (32, 93).

## MIDI MAPS MANAGER

Provides features for saving and loading MIDI CC Maps, as well as options for clearing all MIDI CC assignments at parameter, unit, and global levels. In addition, provides a convenient list presentation of all the learnable KASPAR parameters, organized into different units. You can 'learn' a given parameter by turning on the LEARN button, selecting the desired parameter and manipulating the component on your connected MIDI device to create the assignment. You can also manually enter CC, Channel, as well as MIDI Value Range data for the selected parameter.

## MIDI PROGRAM CHANGES

Specify the MIDI Channel over which MIDI Bank and Program change messages are to be received. You can use this setting to also ignore program change messages.

## MIDI INPUT DEVICES

See a list of physical (e.g., MIDI keyboards) or networked MIDI control devices currently available. Use the MIDI or CLOCK switches for each device to specify whether MIDI or MIDI clock messages from that device are to be ignored.

## VIRTUAL KEYBOARD & RIBBON CONTROLLER (Standalone App Only)

- SCROLL LOCK: Toggle to lock the keyboard in place, or to scroll and resize it.

- RIBBON Controller: Optional ribbon controller lets you choose a musical key and scale, and also transmits polyphonic aftertouch to the KASPAR synth engines when touches are moved vertically. For more information, please refer to GLOBAL PREFERENCES.

# GLOBAL PREFERENCES

- o Polyphony Limit: Specify the polyphony limit for the synth engines. Users with older devices or those with a lot of apps running simultaneously may wish to reduce the polyphony to reduce CPU usage, if jittery audio, delays, or slow, unresponsive UI are encountered.

- o Virtual Keyboard (Standalone App Only): Choose between the classic style of keyboard or the ribbon style on-screen controller. The ribbon controller provides polyphonic aftertouch, which is manipulated by moving the finger vertically on a given key. In addition, you can assign a musical key and scale for the ribbon controller.

- o Virtual KB Velocity (Standalone App Only): Enables MIDI velocity for the onscreen 'classic' keyboard. The sensitivity of the velocity recognizer can be adjusted to your playing style and other factors via the Sensitivity slider.

- o Audio Generation: Set the quality of audio synthesis. NOTE: Higher audio quality settings will place more demand on CPU resources.

- o Buffer Size (Standalone App Only): Specify the buffer size for audio processing. Smaller values equate to reduced latency, but at the same time place more demand on the CPU. The default setting is 256.

    - o NOTE: As the buffer size is a global property in iOS, the buffer size could be successfully set only if there is no other music or audio-related app currently running. All the music apps launched after the first one will typically inherit the 1st app's buffer size. Some apps may not be capable at running at certain buffer sizes. If you are having difficulties or encountering 'jittery' audio, first rule out that the cumulative demand on the CPU of all the open apps is not the culprit. Then, make sure that the current buffer size for iOS is compatible with all the open apps.

- Background Audio: Enable KASPAR to run even if it's not the current app in focus.
  - **WARNING**: It is easy to forget that an app with Background Audio enabled is actually still running, even when not in focus. To prevent accidentally draining your battery, please make sure you either turn off audio backgrounding or quit the app completely after your finished with your session.

- Tuning: Specify the global tuning parameters. These apply to all the synth engines.

# Audio Unit, Inter-App Audio, Audiobus, Ableton Link

## Audio Unit

KASPAR comes packaged with its iOS Audio Unit plugin (KASPAR AU) version. You can use KASPAR AU within an iOS DAW that is capable of hosting Audio Unit instrument plugins. Note that some of the features available in the standalone (app) version may not be available in the Audio Unit version, due to the restrictions and limitations imposed on Audio Units.

DISCLAIMER: Audio Units on iOS are a very recent technology, and as a result, there is a lot of variation among different hosting and plugin implementations, as well as their approaches to resource and memory management. In addition, Audio Units are currently allowed a relatively small amount of memory, which they must share among all their instances. Although KASPAR is optimized to perform as an Audio Unit plugin, running multiple instances may cause this memory limit to be reached, and you may encounter unusual behavior. We're hoping that as devices and operating systems get more powerful, these restrictions will be eased and you will be assured a more satisfying experience with this and other Audio Units.

## Inter-App Audio (Standalone App Only)

KASPAR can be used as an IAA instrument with an IAA compatible host, and features seamless integration via IAA with ToneStack, our flagship guitar, bass, and production effects platform for iOS. Please refer to the host's documentation about how to connect with an IAA instrument.

## Audiobus (Standalone App Only)

KASPAR is available as an instrument/input in Audiobus sessions. In addition, it supports Audiobus state saving. Please refer to Audiobus documentation about how to use apps with Audiobus.

## Ableton Link (Standalone App Only)

KASPAR integrates Ableton Link functionality for BPM syncing. By connecting to a Link session you can share tempo data among apps or devices, and set the session BPM from a single app. For more information, please refer to Ableton's documentation.