TANGIBLE

arpeggio

USER GUIDE

VERSION 1.0

arpeggio

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About This Guide

This guide introduces you to the Tangible Instruments Arpeggio. Use it now to learn the basic Arpeggio skills and pick it up again later to use as a reference. You don't need to know anything about electronic instruments or electronic music to use this guide.

This guide tells you how to:

- Play the keyboard to make music.
- Get started with composing and saving melodies.
- Use the built-in synthesizer to create interesting sounds.
- Connect Arpeggio to other devices in your studio.

Why Arpeggio?

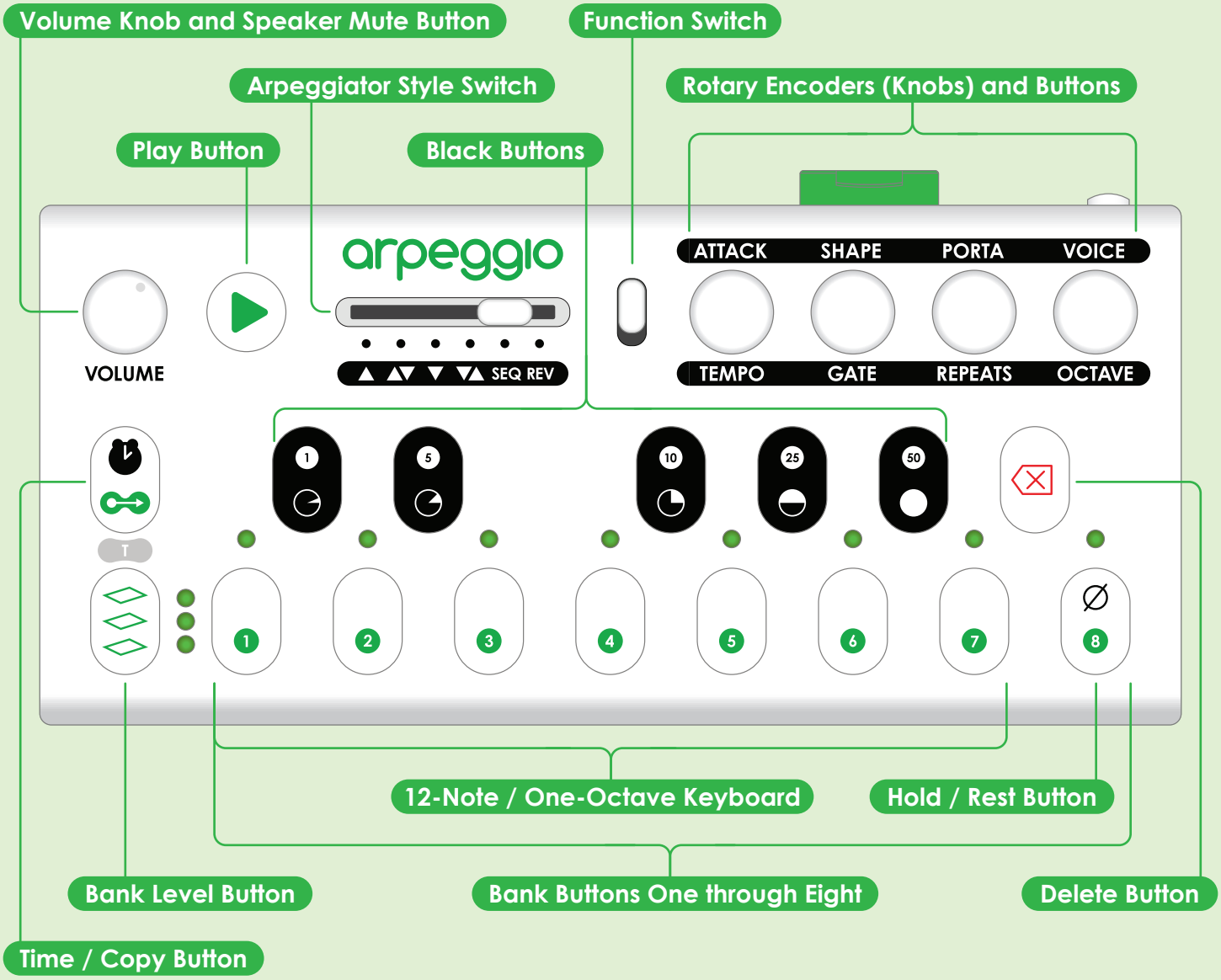
A bassline, a French horn, a guitar solo, a single human voice. What do they all have in common? In a word, melody. Melody is the most fundamental element of music; a collection of notes played one after the other. While other elements such as rhythm and harmony are certainly important, nearly every musical composition can be recognized by its melody alone. So what better place to start on your musical journey than making a melody?

Arpeggio is a tool for melodies. For creating them, keeping them, and performing them. Arpeggio doesn't do everything. It can't make drum beats, and it can't play chords. It only plays one note at a time. It just makes melodies. But melodies are a universe of infinite possibility unto themselves; A thing worth focusing on, a place worth exploring.

NOTE: Throughout this manual the terms "melody", "sequence", "melodic sequence", and "arpeggiation" may be used interchangeably.

Feature Highlights

- Internal 2-oscillator virtual analog monophonic synth with 24 synth presets
- Create and save melodies seamlessly during play
- Up, Up-Down, Down, Down-Up, Sequence, & Reverse arpeggiator styles
- 512 banks for saving user created melodies
- Copy, paste, & delete melodies
- SD card to save melodies, synth patches, and custom arpeggiator styles
- Adjust note lengths and add rests into your melodies
- Control external hardware and software synths
- 1/4" instrument & 1/8" headphone audio outputs
- MIDI in/out over DIN, USB, & Bluetooth
- 1/8" 0-5 volt-per-octave Control Voltage & Gate outputs
- 1/8" sync output jack at 24 ppq
- High quality internal speaker
- USB or battery powered – Make melodies anywhere!



Buttons, Knobs, and Switches

Take a moment to look over the different sections of Arpeggio's user interface and their names, but don't worry about memorizing anything just yet. Throughout this guide, each feature and mode is labeled and explained visually in easily digestible nuggets so you won't need to keep flipping back to reference this page.

Turning Arpeggio On For the First Time

Let's get you and your new instrument up and running! Follow these steps to get started.

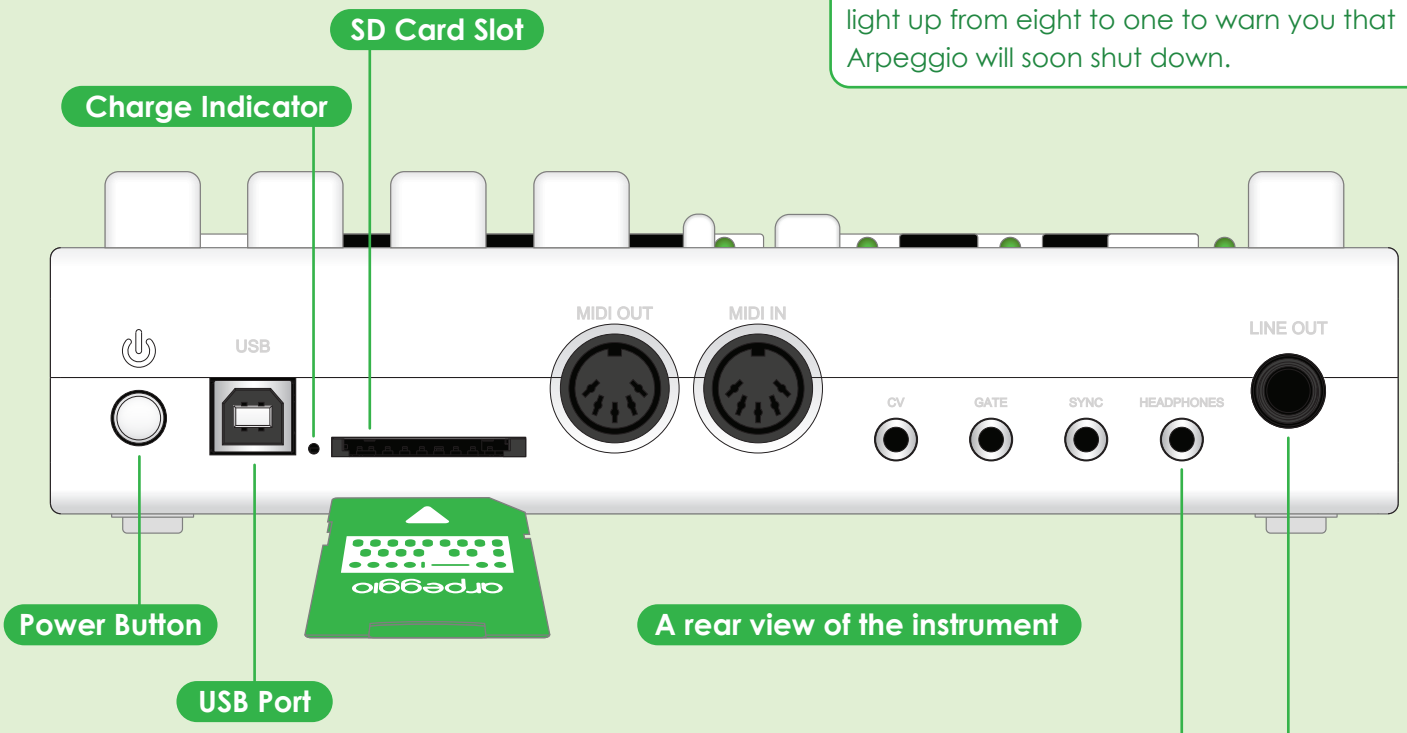
1. Insert the included SD Card into the SD Card Slot.
2. Before supplying power, make sure the **Power Button** is in the off position. Connect the included USB Cable to the USB Port and the included USB Power Supply.
3. Plug the Power Supply into an AC wall socket.
4. Press the **Power Button** until it clicks. Arpeggio's green LEDs will illuminate one at a time.

NOTE: Arpeggio may also be powered if you plug the USB Cable into your computer's USB port.

Running On Battery Power

Follow these steps to use a battery:

1. Remove the battery cover located on Arpeggio's underside. Insert a 3.6v 18650 size re-chargeable lithium-ion battery. Ensure the polarity matches the marking in the battery compartment. Replace the battery cover.
2. While the battery is inserted and Arpeggio is plugged in to a power source, the battery will charge. When the battery is charging, a blue LED will light up next to the USB port.
4. When the battery is fully charged, the blue LED will blink.
5. When the battery is low, the eight LEDs will light up from eight to one to warn you that Arpeggio will soon shut down.



About the SD Card

The SD Card must be inserted in order for Arpeggio to function correctly. Arpeggio uses the SD Card to store all of its data. This includes:

- 512 banks for saving your sequences
- 24 customizable synthesizer presets called Voices
- 24 banks for saving custom arpeggiator styles
- MIDI, arpeggiator, & sequencer settings

The SD Card is also used to load firmare updates.

Audio Outputs

Arpeggio has a built-in speaker on the underside of the instrument. You may also use the 1/8" Headphones Output to connect to headphones or the 1/4" Line Output to connect to an instrument amplifier. If routing audio externally, you may want to push the **Speaker Mute Button** to mute the internal speaker. It will not mute the two audio outputs.

Alternate Functions of the Interface Sections

Almost every one of Arpeggio's buttons and knobs have multiple functions depending on what mode or state the instrument is in, and they may be referred to by different names throughout this guide. Please keep this in mind as you learn to use Arpeggio.

Contextual Delete

Deletes notes and sequences, and clears settings like **Gate Automation**, **Note Repeats**, and **Transpose**.

Time / Copy Button

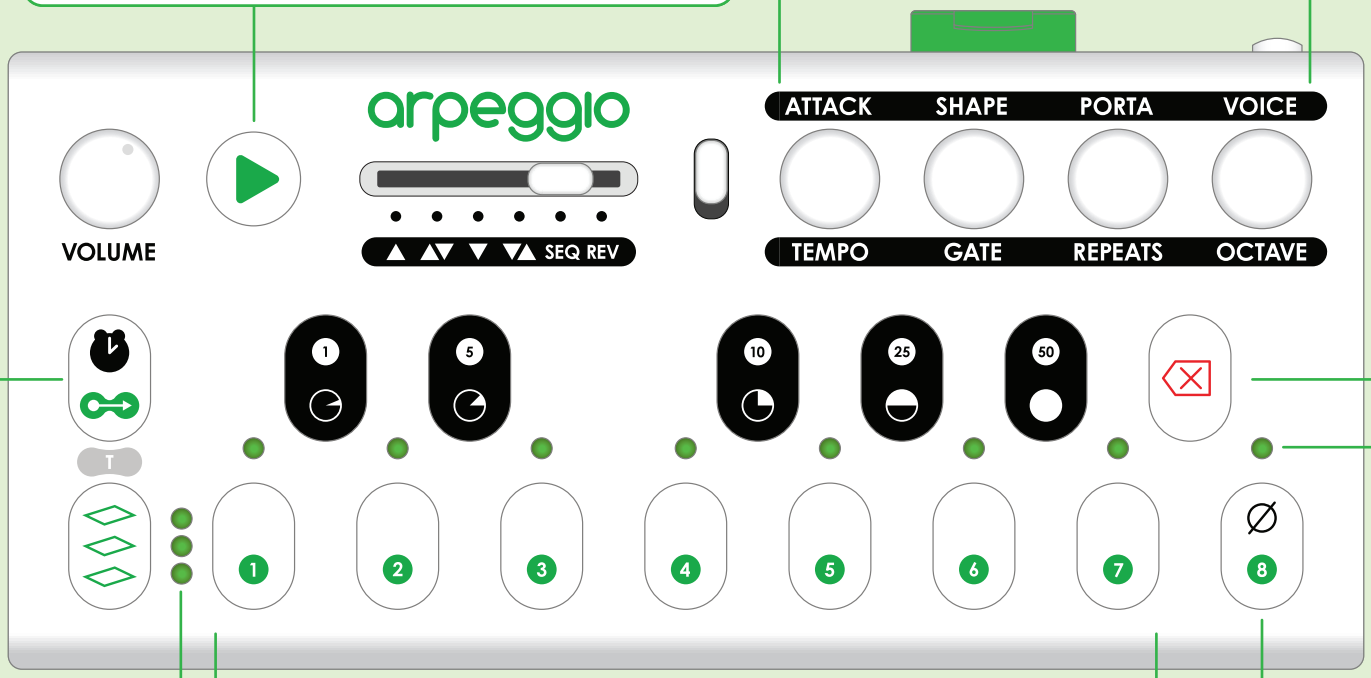
Used to set note lengths, and to copy / paste sequences. It may be called the **Time Button** or the **Copy Button**.

Play Button

Starts and stops the current sequence. Also used as part of key combinations like activating the overlays.

The Four Encoders and Buttons

Each of these encoders is also a button and may be called by either the function listed above it or the function listed below it depending upon the context. Encoders may also be called knobs.



Keyboard Functions

You may have noticed the numbers and pie slices that appear on the keyboard. As you'll see these inscriptions represent the alternate functions of the keyboard buttons. The keyboard buttons will not always play notes! Among other functions, these buttons will also be used to select saved sequence, choose note lengths, and set the tempo.

Hold / Rest Button

A hold / latch function in **Arpeggiator Mode**. In **Sequencer Mode** it adds rest notes and it's also **Bank Button 8**.

The LEDs

These are used to display different types of information depending on the context. Most adjustable parameters like **Attack**, **Shape**, **Porta**, **Voice**, **Gate**, **Repeats**, and **Octave** will use the LEDs to show their current values when you are adjusting them. The LEDs are also used to show the contents of the sequence banks.

Arpeggiator, Sequencer, and Synthesizer

Arpeggio is an arpeggiator, a sequencer, and a synthesizer all in one. OK that's cool, but what are these things?

A **synthesizer** makes a variety of different musical sounds, and it's usually played with a keyboard like one you'd find on a piano. The keyboard lets you play notes of different pitches that sound when you press the keys.

A **sequencer** is a place to store a melody. It lets you choose and input note values, then it sends the notes back out in the order you chose them. A sequencer doesn't make any sound by itself so sequencers and synthesizers need to work together. A sequencer sends note values to a synthesizer, and the synthesizer will then play the notes it receives.

An **arpeggiator** sits between a keyboard and a synthesizer. Instead of letting the synthesizer sound the notes the instant you press a key, it takes the notes you play and turns them into a looping sequence or melody. An arpeggiator also lets you sort these notes into different orders like lowest to highest, or highest to lowest.

About the Modes and their Features

These are Arpeggio's three modes of operation. They don't represent separate sets of functionality, but rather each mode builds upon the features of the previous mode. For example when Arpeggio is in **Arpeggiator Mode** the synthesizer inside will still be playing and all of its functions will continue to be accessible. **Sequencer Mode** includes all the features of **Arpeggiator Mode** and **Synthesizer Mode** but also gives you the ability to now save and edit your melodies.

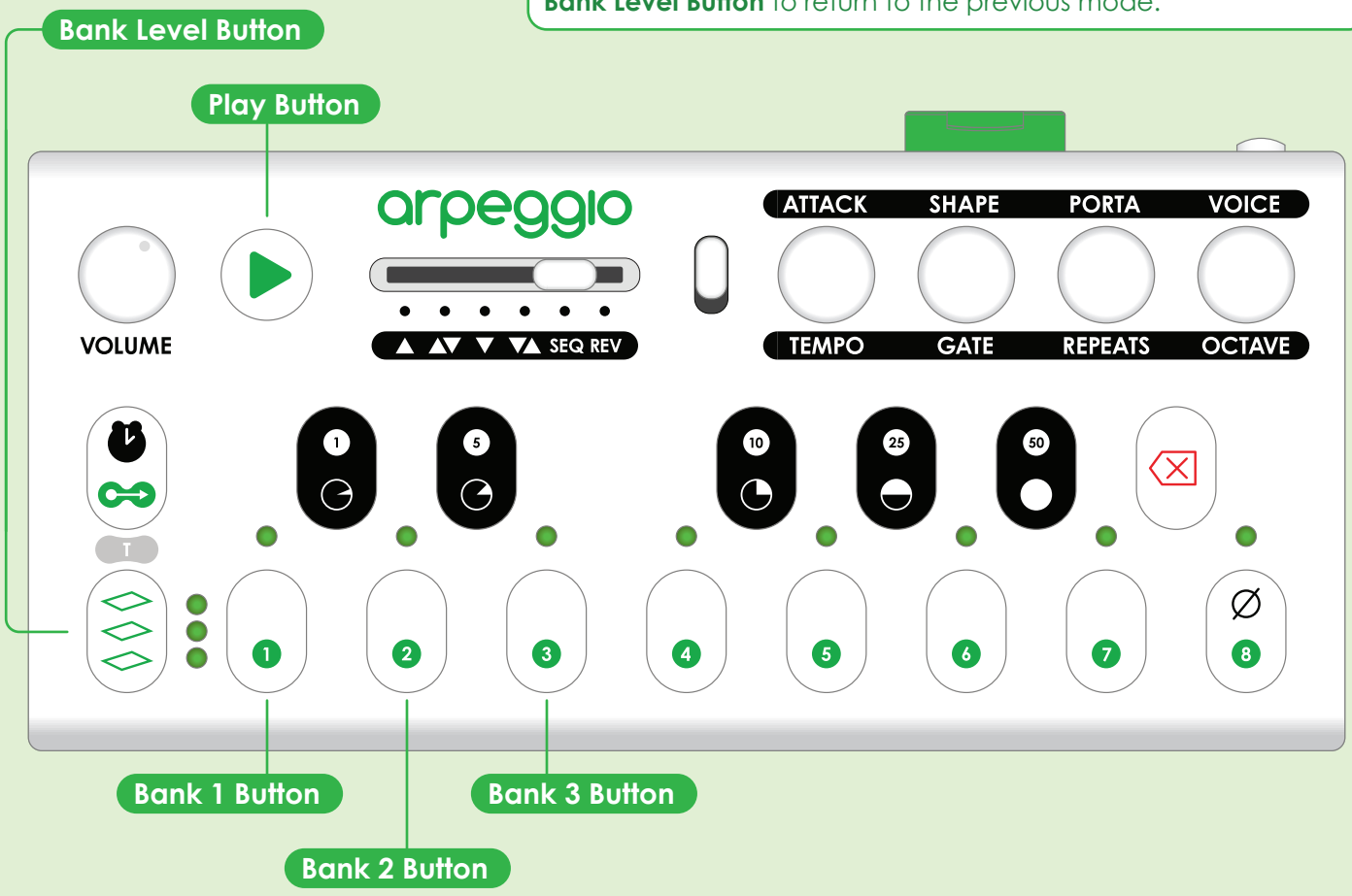
Important Skills

Central to getting comfortable operating Arpeggio is learning how to navigate between the three main modes and their associated function overlays.

Navigating Between the Main Modes

When you turn Arpeggio on it will always default to **Synthesizer Mode** and from here you can easily access both **Arpeggiator Mode** and **Sequencer Mode**. To switch between modes:

- From **Synthesizer Mode** press the **Play Button** once to enter **Arpeggiator Mode**. Press again to return to **Synthesizer Mode**.
- Press the **Bank Level Button** from either **Synthesizer Mode** or **Arpeggiator Mode** to enter **Sequencer Mode**.
- In **Sequencer Mode** hold down the **Play Button** and press the **Bank Level Button** to return to the previous mode.



Enter and Exit the Overlay Modes

The overlay modes may be accessed from any of the other modes. First hold down the **Play Button** and then press:

- **Bank 1 Button** to enter **Arpeggiator Overlay Mode**
- **Bank 2 Button** to enter **Sequencer Overlay Mode**
- **Bank 3 Button** to enter **Synthesizer Overlay Mode**
- **Bank Level Button** to exit any of the **Overlay Modes** and return to the previous mode

If You Get Confused

If you're ever unsure of what mode you're in, hold down the **Play Button** andt press the **Bank Level Button** and then do it again. This will always return you to either **Synthesizer Mode** or **Arpeggiator Mode**.

Getting Started

Trying playing some notes on the **Keyboard** and adjusting the **Volume**. Turn the **Octave Knob** to play higher and lower notes. Now press the **Play Button** and hold down some notes to hear them loop.

Function Switch

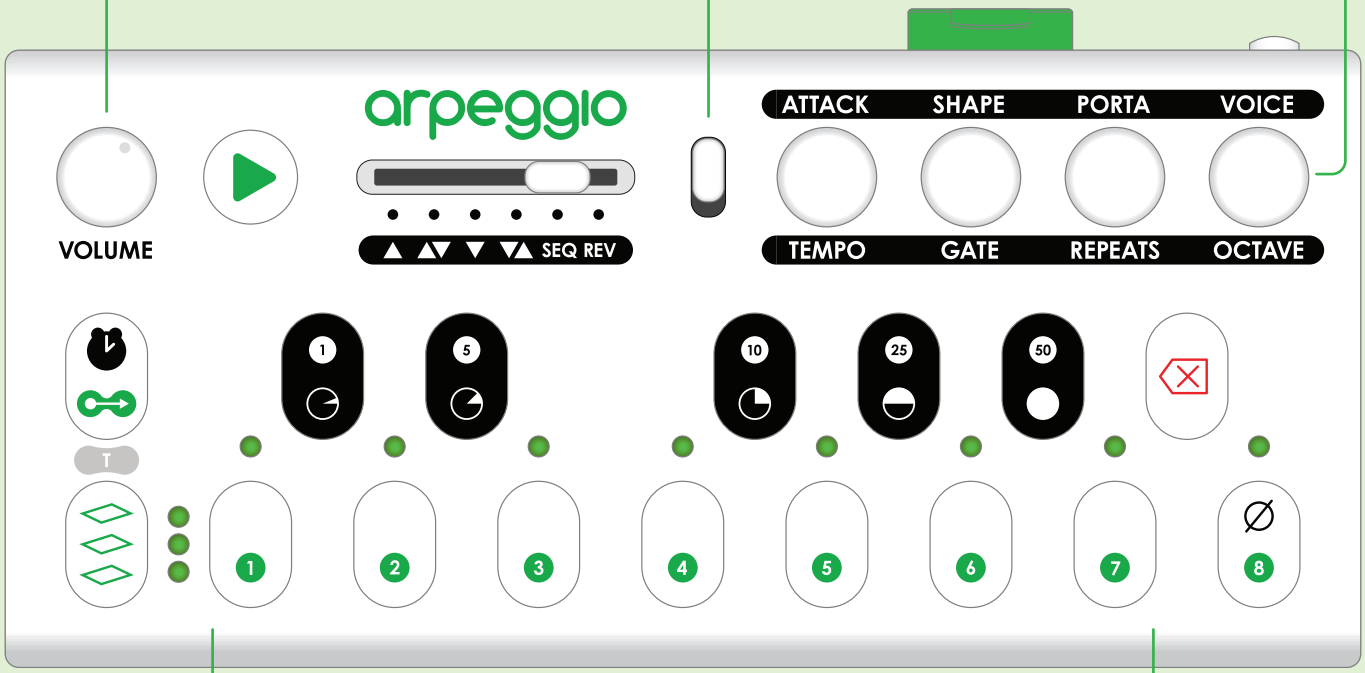
The function switch changes the functions of the four encoders from the parameters listed above to those listed below. Each of the four encoders also has a push button which provides further functionality. Make sure the **Function Switch** is in the down position in order to access the **Octave Knob.**

Volume Knob and Speaker Mute Button

Turn the **Volume Knob** to the right to increase the volume of the Synthesizer, and turn to the left to reduce the volume. Push down on the knob to engage the **Speaker Mute Button**. This will mute the internal speaker. Push the button again to unmute the internal speaker.

Octave Knob and Button

Arpeggio has an eight octave range. Turn the **Octave Knob** to shift the current octave of the **One-Octave Keyboard** up or down. Push the **Octave Button** to display the current octave on the LEDs.



12-Note / One-Octave Keyboard

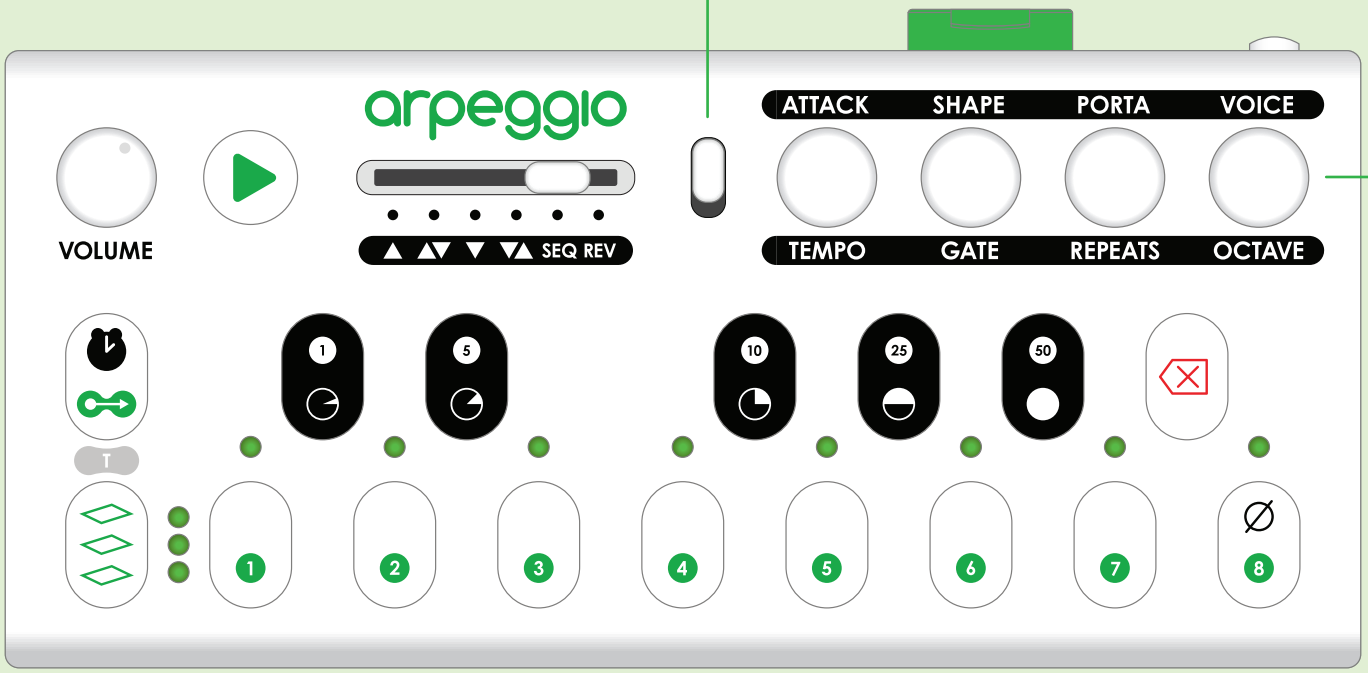
A **One-Octave Keyboard** from low C to a high B is where you'll play notes and create your own melodies. In **Synthesizer Mode**, the **One-Octave Keyboard** will play notes. In **Arpeggiator Mode** and **Sequencer Mode**, the **One-Octave Keyboard** will add notes to the melody or arpeggiation.

Making Sounds With the Synthesizer

Synthesizer Mode is Arpeggio's most basic mode. In this mode the built-in synthesizer will trigger sounds when you play notes from either Arpeggio's **One-Octave Keyboard** or from a connected MIDI device. Try playing some notes while turning the **Voice Encoder** to cycle through the voices and listen as the character of the sound changes.

Function Switch

Make sure the **Function Switch** is in the up position in order to access the **Synthesizer Parameters**.



Synthesizer Parameter Encoders

- **Attack** (**Envelope A**) alters how fast the sound reaches full volume when a note is played. Turn to the left for a faster attack and to the right for a slower attack.
- **Shape** (**LPF Cutoff**) adjusts the harmonic content of the sound. Turn to the left to filter out more high frequencies and to the right to hear more of the high frequencies.
- **Porta** (**Portamento**) sets how quickly the pitch of the synth slides from one note to the next. Turn to the left for a faster slide time and to the right for a slower slide time.
- Turn the **Voice Encoder** to cycle through 24 different preset synth sounds. Each synth voice presents a unique timbre setting for each section of the synthesizer.

Synthesizer Parameter Buttons

Press any of the Parameter Buttons to display that parameter's value on the LEDs. The **Attack** and **Shape** buttons also toggle coarse / fine adjustment settings for those parameters. The default is coarse. Activate the fine setting to allow for these parameters to be altered with more precision.

Advanced Synthesizer Features

Access all synth parameters to create and save your own synthesizer presets with the **Synthesizer Overlay**. See **Page 27** for more.

Create Instant Looping Melodies

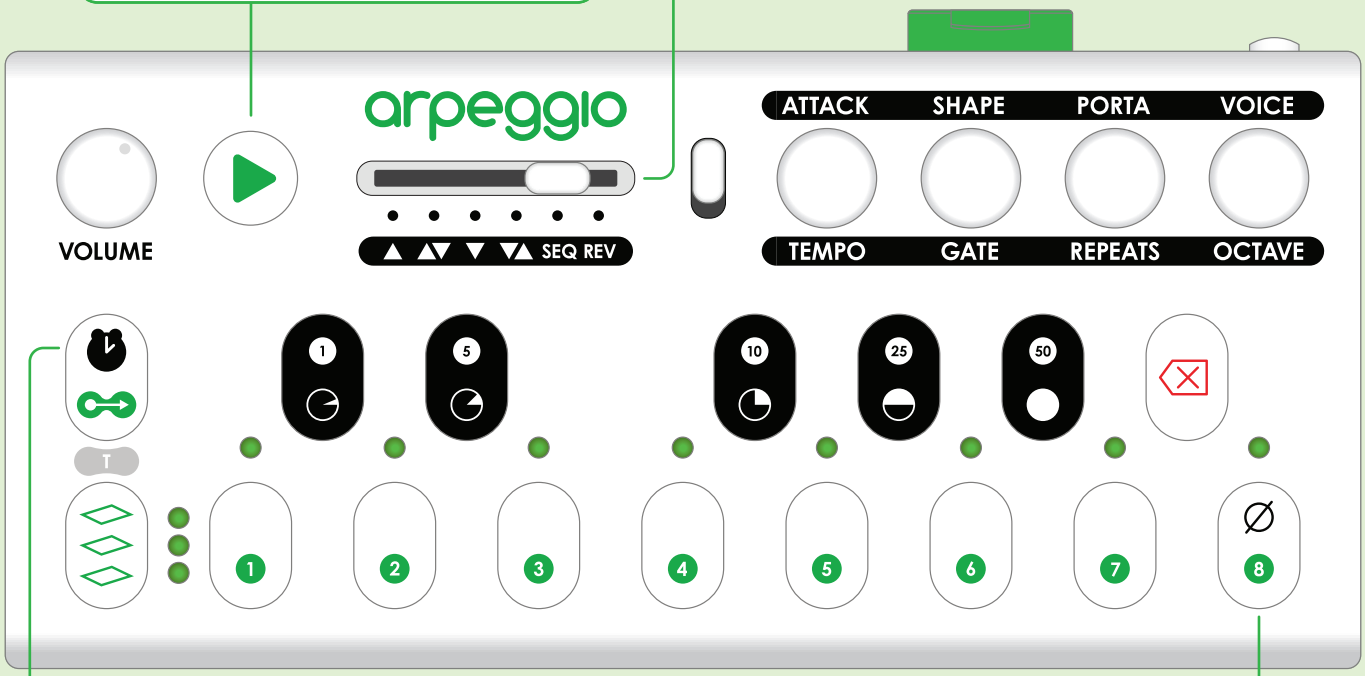
In **Arpeggiator Mode**, notes played from either Arpeggio's **One-Octave Keyboard** or from a connected MIDI device create a melody which will loop continuously. This melody will play on the built-in synthesizer as well as output notes as MIDI messages and CV / Gate signals. Each melody can be up to 128 notes long.

Play Button

Press the **Play Button** from **Synthesizer Mode** to enter **Arpeggiator Mode**. Pressing the **Play Button** again will return Arpeggio to **Synthesizer Mode**.

Setting Note Order - Arpeggiator Style Switch

The **Arpeggiator Style Switch** determines the sorting order in which the notes in the melody or "arpeggiation" are played. The **Up** [▲] style sorts the notes from lowest to highest. **Down** [▼] sorts notes from highest to lowest. The **Up-Down** [▲▼] and **Down-Up** [▼▲] styles combine the **Up** and **Down** styles. In **SEQ** (Sequence) notes will play in the order that they were added. In **REV** (Reverse) notes will play in the reverse / opposite order of **SEQ** Style.



Note Lengths - Time and Black Buttons

By default all notes added to a melody are sixteenth notes. Setting a different length will make all notes added afterwards the chosen length. To set the note length hold down the **Time Button** and select one of the five **Black Buttons**. Each pie slice icon represents a note length: **Sixteenth** [◔], **Eighth** [◔], **Quarter** [◔], **Half** [◓], **Whole** [●]. For shorter note lengths, see **Page 25**.

Hold Button

Upon entering **Arpeggiator Mode** for the first time, the **Hold** setting will be off. When **Hold** is off the notes added into the melody will be removed as soon as the note button or key is released. This setting is useful for arpeggiating changing chords as you play them. To turn the **Hold** setting on press the **Hold Button** and the LED above it will illuminate. With **Hold** turned on, the notes will stay in the melody when released. Pressing the **Hold Button** again will immediately remove all notes from the sequence.

NOTE: Hold is the only feature unique to Arpeggiator Mode.

Setting the Tempo with the Tempo Encoder and Button

By default the tempo is set to 120 BPM (Beats Per Minute) and can be set between 30 - 285 BPM. The tempo may be set in two ways. **Incrementally**: turn the **Tempo Encoder** to the left to slow the tempo or to the right to speed it up. Each detent or click of the encoder will increase or decrease the tempo by 2 BPM. **Precisely**: Hold down the **Tempo Button** and select any combination of the numbered **Black Buttons**: **1**, **5**, **10**, **25**, or **50**. When the **Tempo Button** is released the new tempo will be set. For example to set a tempo of 125 BPM, hold down the **Tempo Button** and push **50** twice, and **25** once (50+50+25 = 125) then release the **Tempo Button**.

Delete Button

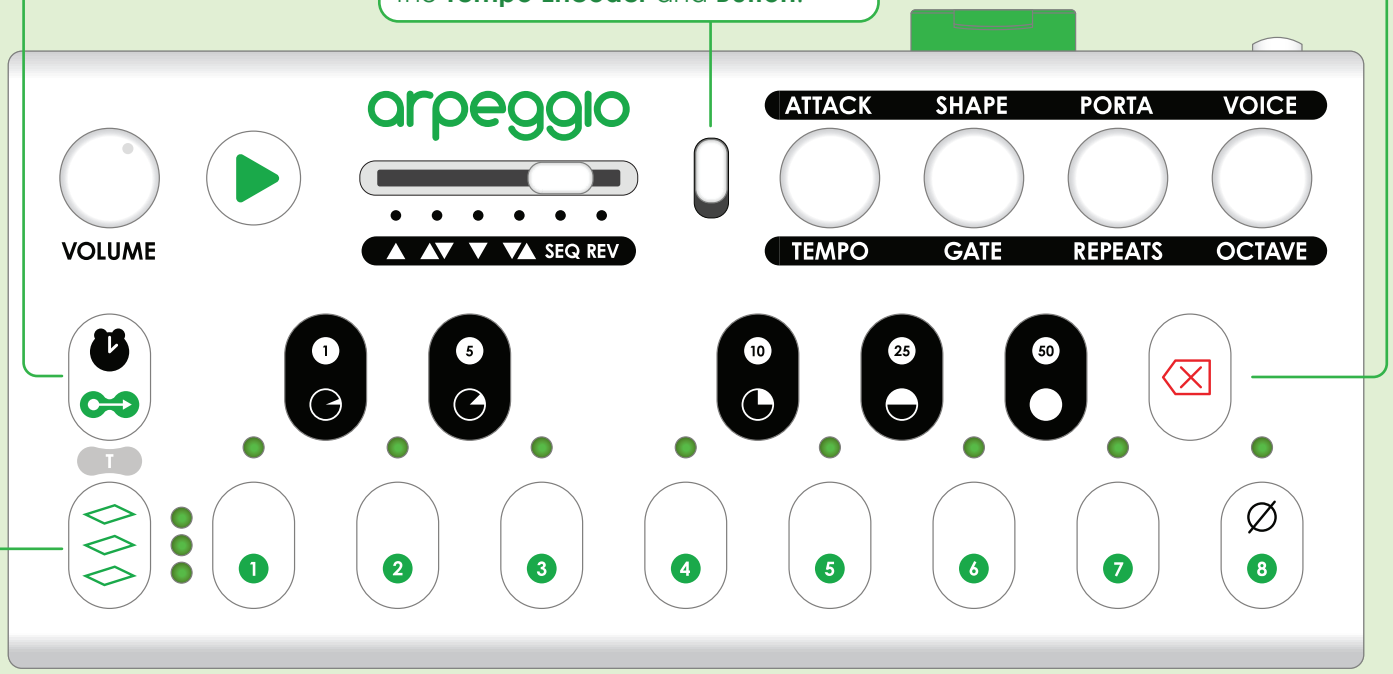
Pressing the **Delete Button** will remove notes one at a time from the melody. Notes will be deleted in the reverse of the order that they were added. The last added note will be deleted first. If the **Delete Button** is held down, notes will continue to be deleted until there are no notes left.

Bank Level Button

Time / Copy Button

Function Switch

Make sure the **Function Switch** is in the down position in order to access the **Tempo Encoder** and **Button**.



Transposing Your Melodies

Melodies may be transposed or shifted in pitch up or down while they are playing:

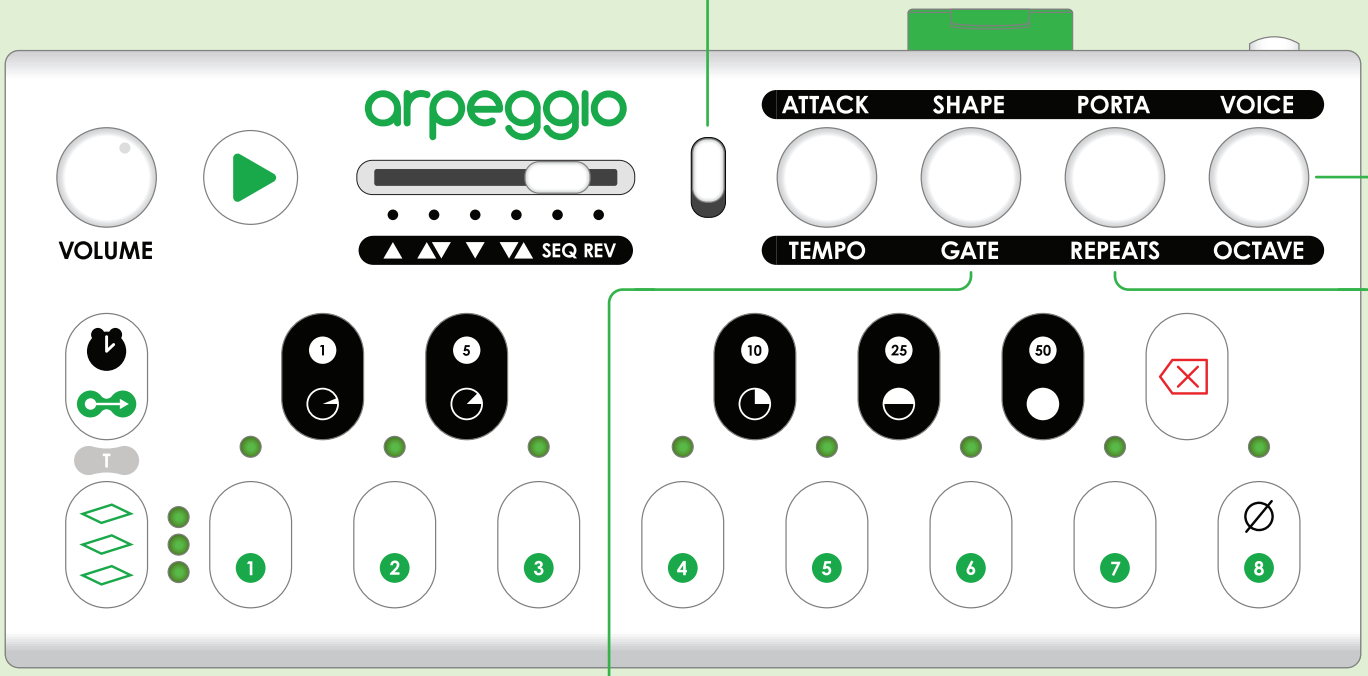
1. Hold down both the **Bank Level Button** and the **Time / Copy Button**.
2. Select any note from the **One-Octave Keyboard**. The melody will be shifted up by the number of steps the selected key is away from the C key. For example, if you select the F key then your melody will be shifted up five steps.
3. To transpose your melody by whole octaves / registers, turn the **Octave Encoder**. Turning to the left will shift the melody down and turning to the right will shift the melody up.
4. Once your melody has been transposed you can release the **Bank Level** and **Time / Copy Buttons** and the transpose setting will remain .
5. To clear out a transpose setting, Hold down the **Bank Level** and the **Time / Copy Buttons** and push the **Delete Button**. This will return your melody to the original key and octave.

Function Switch

Make sure the **Function Switch** is in the down position in order to access the **Gate**, **Repeats**, and **Octave Encoders** and **Buttons**.

Gate, Repeats, and Octave Buttons

Pushing any these buttons will display that parameter's value on the LEDs.



Gate Encoder

A note length is composed of note-on time (when the note is sounding) and note-off time (when the note is silent). The **Gate Encoder** adjusts the percent of time that notes will sound within the duration of the note length from staccato (low gate length) to legato (high gate length). The default gate length is 50%. This means that notes will be on for 50% of the time and off for 50% of the time. Turn the **Gate Encoder** to the left to decrease the gate length and turn it to the right to increase the gate length. The eight LEDs above the buttons numbered one through eight will illuminate to display the note-on time.

NOTE: If you're using a synth voice with a long release or short sustain time it may be difficult or impossible to hear gate length changes.

Repeats Encoder and Button

The number of times that each note in a melody repeats before going to the next note may be adjusted by turning the **Repeats Encoder**. Turn to the right to increase the number of repeats and to the left to reduce the number of repeats. Hold down the **Repeats Button** and hit the **Delete Button** to clear ALL repeats and octave repeats settings for the melody.

Octave Note Repeats

Notes may be repeated in up to three ascending or descending octaves before going to the next note:

1. Hold down the **Octave Button**.
2. Turn the **Repeats Encoder** to the left or right up to three clicks. Turning to the left will repeat each note in lower octaves and turning to the right will repeat the melody in higher octaves.

Octave Melody Repeats

Whole melodies may also be repeated in up to three ascending or descending octaves:

1. Hold down the **Repeats Button**.
2. Turn the **Octave Encoder** to the left or right up to three clicks. Turning to the left will repeat the melody in lower octaves and turning to the right will repeat the melody in higher octaves.

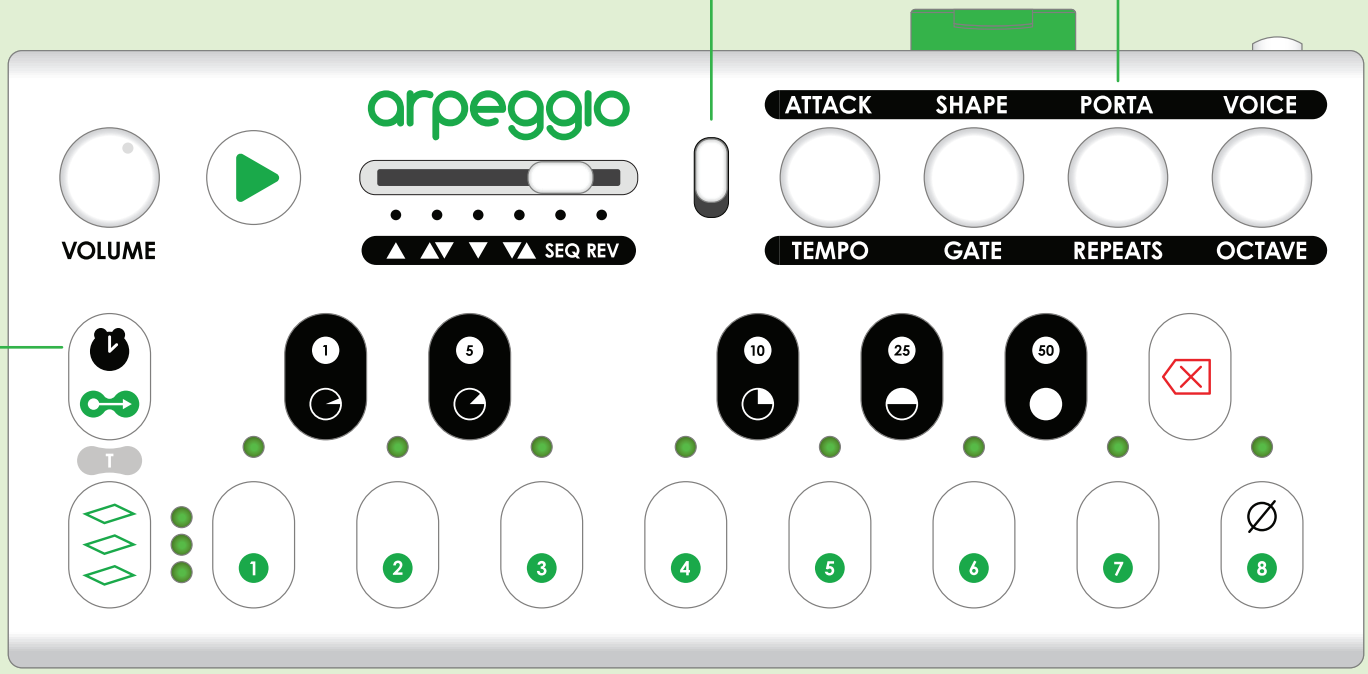
Time Button

Function Switch

Make sure the **Function Switch** is in the up position in order to access **Shape** and **Porta** or down to access **Gate**.

Slide Notes

To add a slide note to your melody, hold down the **Porta Button** and add a note. Turn the **Porta Encoder** to increase the slide time.



Gate and Shape Automation

Each note in a melody may have unique values of **Gate** and **Shape**. Here's how to record and "automated" these .

1. Turn the **Shape** or **Gate Encoder** to the desired position.
2. Hold down the **Time Button**.
3. Push down on the **Shape** or **Gate Button** during the notes where you want to record the value. You may also turn the encoder to change the value while pushing down on the button. The parameter value will be recorded only on the notes that were playing while the button was pushed down. Notes that do not have a recorded value will respond to the current setting of the **Shape** or **Gate Encoder**.
4. To clear out the recorded automation hold down the **Shape** or **Gate Button** and hold the **Delete Button** while the notes with recorded values are playing.

NOTE: If a new value is being recorded over a previously recorded value, the new value will not be heard until the melody repeats.

Advanced Arpeggiator Features

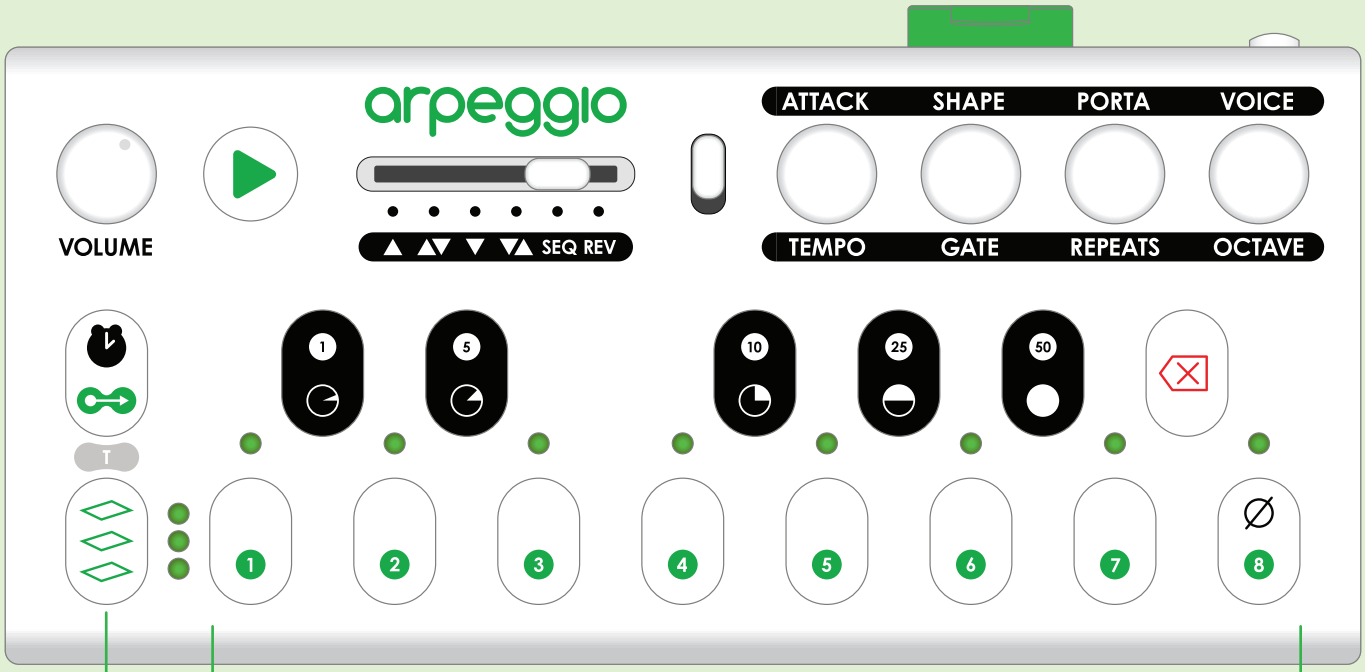
There are even more arpeggiator features to explore on the **Arpeggiator Overlay** including **Swing**, **Arp Rhythm**, **Parameter Sort Settings**, and lots of additional arpeggiator styles like **Random**, **Zigzag**, and **Inside Out**! You can combine and modify styles to create millions of custom note orders. See **Page 18** to learn more.

Enter Sequencer Mode

From either **Synthesizer Mode** or **Arpeggiator Mode**, press the **Bank Level Button** to enter **Sequencer Mode**. When you enter **Sequencer Mode** after turning Arpeggio on, you will be placed into **Set 1**, **Song 1**.

Save and Perform Your Sequences

In **Sequencer Mode** you get access to Arpeggio's **512 Sequence Banks** for saving your melodic sequences. Each **Sequence Bank** may contain one sequence. This mode also allows you to play your saved sequences. When a sequence is playing and a new sequence is selected, it will load and play as soon as the currently playing sequence ends. In this mode, all features of **Arpeggiator** and **Synthesizer Modes** are accessible except for the **Hold** function. In **Sequencer Mode** mode you can think of the **Hold** function as being always on. Notes can only be removed from the sequence by pressing the **Delete Button**.



Sets, Songs, and Sequences

Banks are arranged into three levels: **Sets** (top level), **Songs** (middle level), and **Sequences** (bottom level) which correspond to the three LEDs arranged vertically next to the **Bank Level Button**. The LED that is illuminated indicates the current bank level. There are **8 Set Banks**. Each **Set** contains, **8 Song Banks**, and each **Song** contains **8 Sequence Banks**. You can think of **Sets** as folders or directories on a computer with **Songs** inside them, and **Songs** as folders with Sequences in them. Actually that's exactly what they are. If you look at the contents of Arpeggio's SD Card on your computer, that's what you will see!

Navigating Banks and Bank Levels

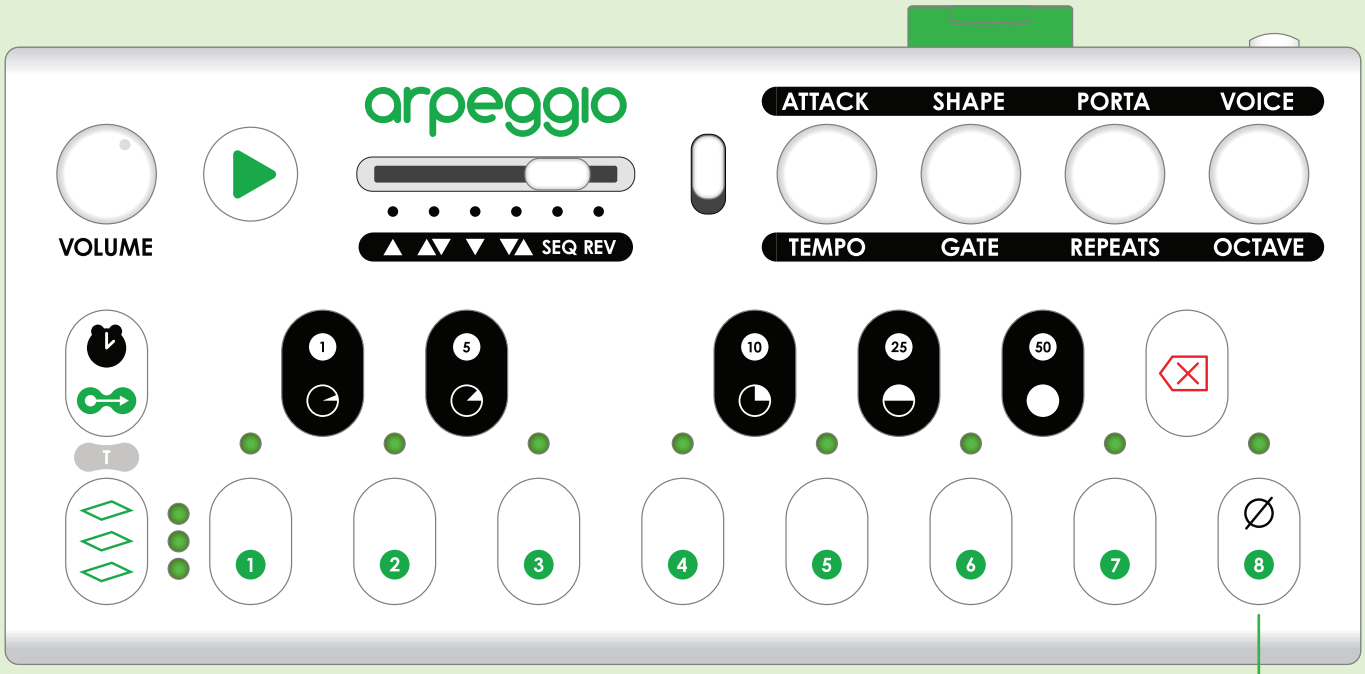
In addition to being part of the **12-Note Keyboard** the white buttons labeled **1** through **8** are called the **Bank Buttons**. These buttons along with the **Bank Level Button** allow you to access all **512 Sequence Banks**. Pressing the **Bank Level Button** will take you up one bank level and selecting a **Bank Button** will take you down one bank level. When a sequence is playing and you are navigating through the bank levels, the LED above the banks that contain the playing sequence will blink to help you keep track of where that sequence is located.

Creating, Saving, and Loading Sequences.

When a bank (**Set**, **Song**, or **Sequence**) is occupied by at least one sequence, the LED above that **Bank Button** will be illuminated. LEDs above completely empty banks will be off. To create a new sequence, select an empty **Sequence Bank** and the **12-Note Keyboard** will then be activated so you can start to add notes to that sequence. When you are done adding notes, press the **Bank Level Button** and the sequence will be saved to the SD Card. When an occupied **Sequence Bank** is selected, that sequence will be loaded, and pressing the **Play Button** will then play that sequence.

Save a Melody From Arpeggiator Mode

To save a melody that you've made in **Arpeggiator Mode** enter **Sequencer Mode** by pressing the **Bank Level Button**, select an empty **Sequence Bank**, then save it by pressing the **Bank Level Button**. If you select a **Sequence Bank** that is full, the melody you made in **Arpeggiator Mode** will be lost.



Creating and Saving a Sequence Step by Step

Follow these steps to create and save a sequence:

1. Find an empty sequence bank Using the **Bank Level Button** and **Bank Buttons**. The LED above empty sequence banks will be off.
2. Push the **Bank Button** of the empty sequence bank to select that bank.
3. Note that all the LEDs are now off. The **12-Note Keyboard** is now active and you can begin adding notes to your sequence.
4. You may press the **Play Button** to hear your sequence. Press again to stop the sequence.
5. Once you are happy with the sequence, press the **Bank Level Button**. This will save your sequence to the SD Card and return you to the **Sequence Bank Level**.
6. Note that the LED above the bank with your saved sequence is now illuminated.

Rest Button

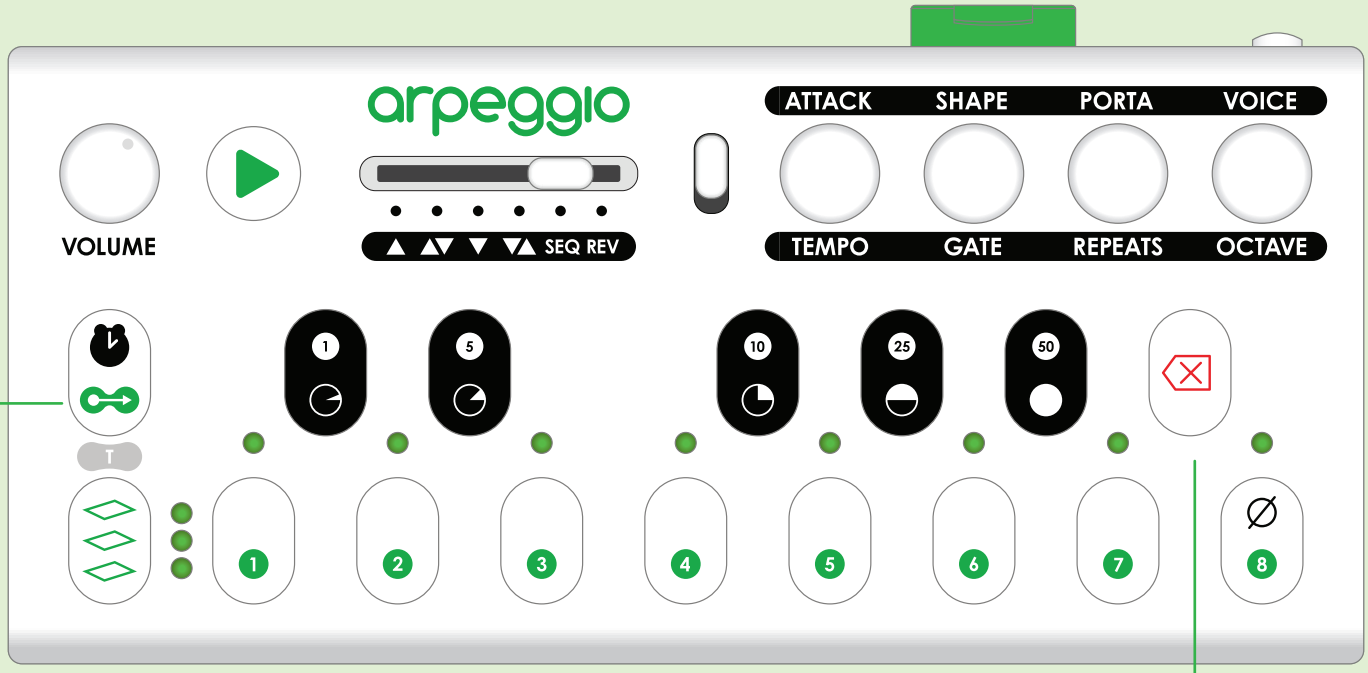
To add a rest (a period of silence) into a sequence, press the **Rest Button** while the **12-Note Keyboard** is active. The length of the rest will be the same length as the currently selected note length. When selecting an arpeggiator style like **Up** or **Down** for a sequence that contains rest notes, the rests will not be sorted with the other notes because they do not have a pitch. They will remain in their positions within the sequence.

Editing Existing Sequences

To edit an existing sequence, hold down the **Bank Button** for that sequence for three seconds then release. The **Bank Level LEDs** will light one at a time. The **12-Note Keyboard** will then be activated so you can add or delete notes. Press the **Bank Level Button** again to save.

Sequence Shortening

While performing, current sequence length may be temporarily shortened selecting one of the **Black Buttons**. The pie slice icons indicate how shortened the sequence will be. [●] = whole sequence, [◓] = half of the sequence, [◔] = quarter of sequence, [◔] = eighth of the sequence, [◔] = sixteenth sequence.



Copy Button - Sequence Copy and Paste

A sequence may be copied from one sequence bank and pasted into any other sequence bank. The destination bank may be located in any set or song. If the destination bank is already occupied, that sequence will be overwritten.

1. Hold down the **Copy Button** and press the **Bank Button** with that contains the sequence you want to copy. Release the **Copy Button.**
2. Navigate to the song that contains the sequence bank you want to paste the copied sequence into.
3. Press the **Bank Button** of the sequence you want to paste the copied sequence into, or pres the **Play Button** to cancel the copy and paste operation.

Deleting Sequences

To delete a sequence:

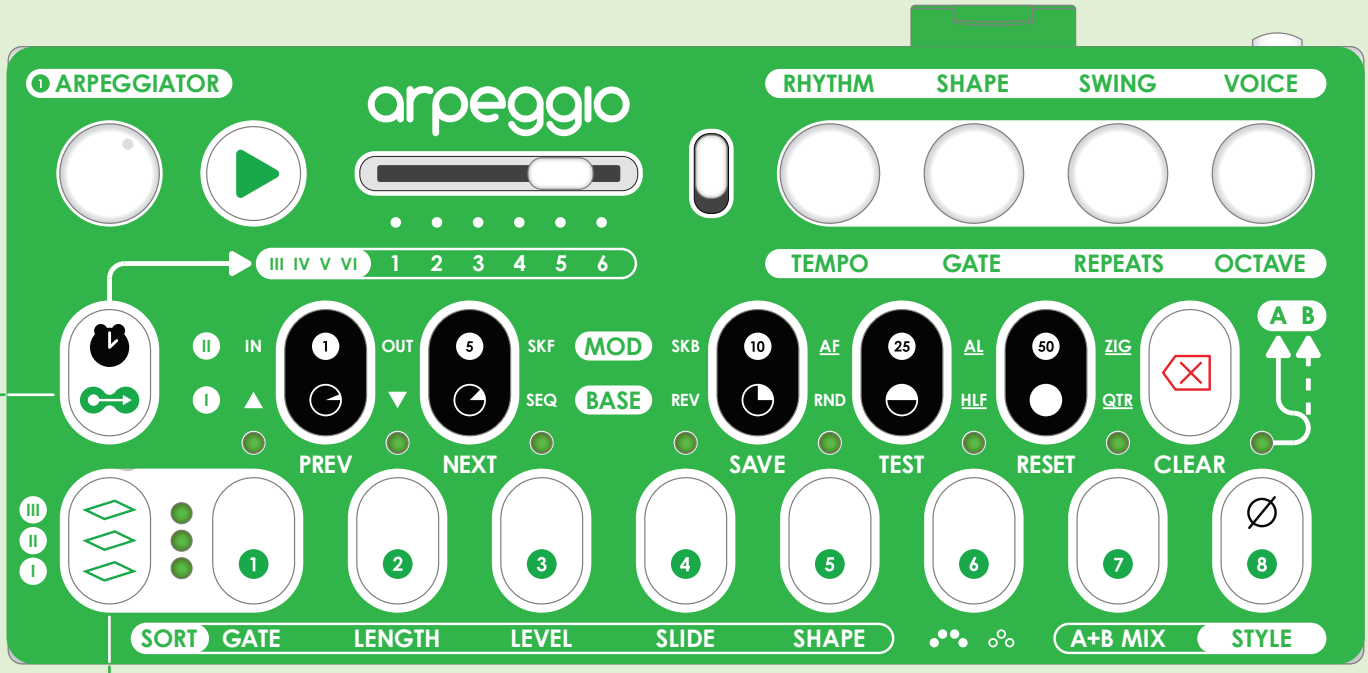
1. Hold down the **Delete Button.**
2. Push the **Sequence Bank** of the sequence you want to delete and then release the **Delete Button**.
3. Push the **Delete Button** to delete the sequence. Push the **Play Button** or **Copy Button** to cancel.

Advanced Sequencer Features

There are even more Sequencer features to explore on the **Sequencer Overlay** including **Note Chance**, **Sequence Frequency Patterns**, and **Parameter Read Settings**. You can also scrub through notes in a sequence and adjust their Level, Octave, Slide, and Pitch or replace notes with rests. See **Page 24** to learn more.

A New Arpeggiator Paradigm

The **Arpeggiator Overlay** gives you an insane amount of control over the creation of custom arp styles. Each arp style can be made up of two note orders **Part A** and **Part B**, and also contains an **Arpeggiator Rhythm** of up to 16-steps. Separate modifiers may also be added to parts **A** and **B** and they can be played one after the other or shuffled every other note. The result of all this is that literally millions of unique arp styles are possible. To enter the overlay hold down the **Play Button** and press the **Bank 3 Button**. To exit, hold down the **Play Button** and press the **Bank Level Button**.



Pages Button

The **Arpeggiator Overlay** has four main pages. The **Pages Button** cycles through these pages, and the three LEDs (**I**, **II**, **III**) beside it show what page is active:

III (Top): .....**Arp Bank Pages**
II (Middle): .....**Mod Order Page**
I (Bottom): .....**Base Order Page**
All LEDs off: .....**Sort Options Page** (default)

Arp Bank Pages Button

This button cycles through the four **Arp Bank Pages**. The six arp styles on the selected page become the new defaults accessible everywhere. The three LEDs (**I**, **II**, **III**) beside the **Pages Button** show what Bank is active:

III: .....**Arp Bank Page III** (default)
III + **I**: .....**Arp Bank Page IV**
III + **II**: .....**Arp Bank Page V**
III + **II** + **I**: .....**Arp Bank Page VI**

Black Buttons Functions

These are accessible from every page of the overlay:
PREV - Load the previous arp style.
NEXT - Load the next arp style.
SAVE - Save the changes you've made to the current arp style.
TEST - Loads a simple test sequence to hear what the current arp style sounds like. If a sequence is already playing, it will be replaced with the test sequence.
RESET - Undo all changes you've made to the current arp style without saving.
CLEAR - Clears the arp style and reverts to the default style for the current **Arpeggiator Style Switch** position.

Arp Style Switch

The **Arp Style Switch** is accessible from every page of the overlay, and is used to select one of the six styles from the current arp bank.

Encoder Functions

All encoder functions are accessible from every page of the overlay. The **Shape**, **Voice**, **Tempo**, and **Repeats Encoders** behave normally. Turning the **Octave Encoder** will activate **Octave Melody Repeats.**

Sort Options Page - Parameter Sort Settings

The **Parameter Sort Settings** let you toggle which of the five note parameters (**Gate Automation**, **Length**, **Volume Level**, **Slide**, and **Shape Automation**) you want to sort with the Note pitches when sorting into the **Base Note Order**. When the LED above a parameter button is on, that parameter will be sorted. Letting parameters remain unsorted can be musically interesting because it allows for rhythmic or dynamics motifs to remain constant while the pitches of a melody change.

Style A B Button

Each arp style may have a combination of two note order style setting: **Part A** and **Part B**. The **Style A B Button** toggles access to these two parts. When the LED above the button is on, you have access **Part A** settings and when the LED is off, **Part B** settings are accessible.

Sort Options Page - End Note Repeat Button

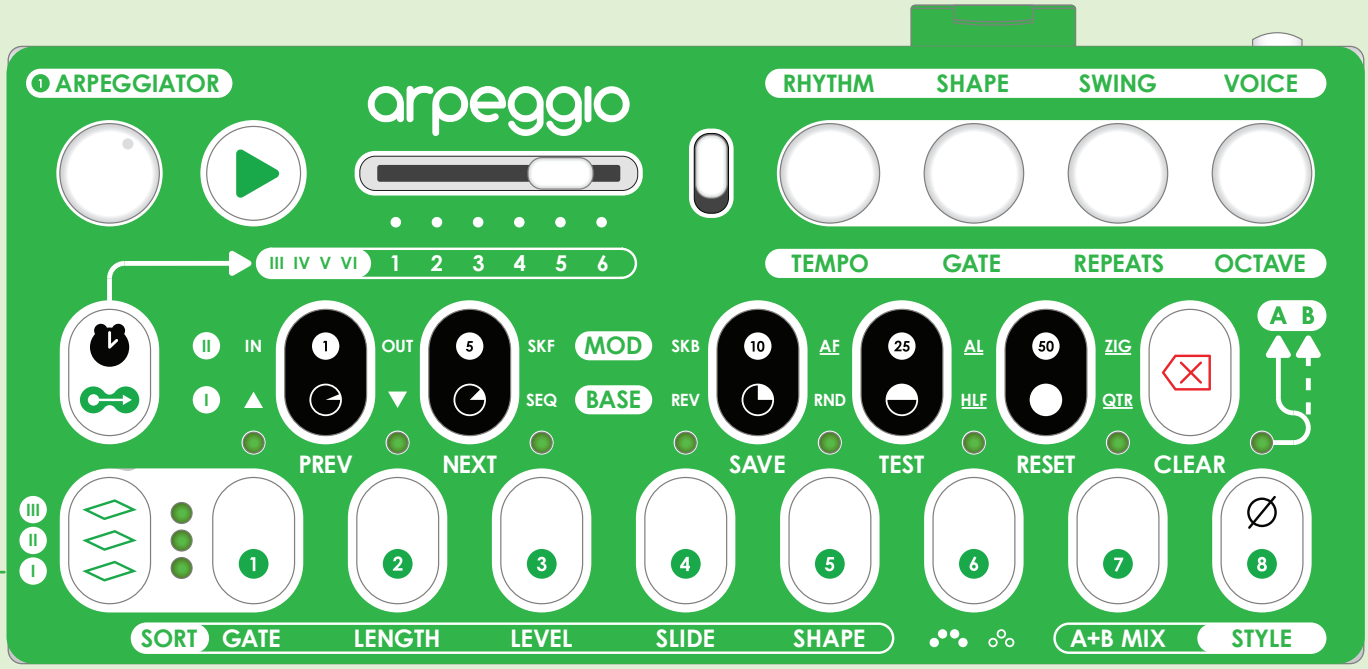
With arp styles like **Up-Down** or **Down-Up** where notes ascend and the descend or descend and then ascend, the ending note of the first style will also be the first note of the second style and it will repeat. The **End Note Repeat Button** provides the option of eliminating this repetition or not. When the LED above the button is on, the end note will repeat, when the LED is off, it won't.

Sort Options Page - A+B Mix Button

The **A+B Mix Button** toggles between two options of **Part A** and **Part B** play. The default option is **Sequential** (LED off) where all the notes of **Part A** are played followed by all the notes of **Part B**. The other option is **Mixed** (LED on) where **Part A** and **B** alternate every other note.

Base Order Page - LED I (Bottom)

The **Base Order Page** is where you will select the base or root note order for **Part A** and **Part B** of the currently selected arp style. Push the **Pages Button** until only the bottom LED (**I**) is lit to enter this page.



Base Order Page - Base Order Buttons

There are five base note orders:

Up [▲] sorts notes from lowest to highest
Down [▼] sorts notes from highest to lowest
SEQ (**Sequence**) sorts notes in the order they were added
REV (**Reverse**) sorts notes in the reverse order of **SEQ**
RND (**Random**) sorts notes in random order

Push one of the five **Base Order Buttons** to select the note order for **Part A** or **Part B**. The labels for each note order are directly above the LED for each button, arranged horizontally across from the (I) which corresponds with the same (I) next to the **Pages Button**.

Part B is optional. To turn it off, use the **Style A B Button** to toggle to **Part B** and then press the button below the selected base note order and the LED will turn off.

Style A B Button

The LED above tells you which style part is being set: on (**A**) or off (**B**).

Base Order Page - HLF and QTR Buttons

The **HLF** (**Half**) and **QTR** (**Quarter**) **Buttons** take the base note order and modify it. These settings are optional and only one may be selected at a time:

Half takes the Base Note Order and reverses the last half of the notes like this:

1-2-3-4 5-6-7-8 becomes **1-2-3-4 8-7-6-5**

Quarter takes the Base Note Order and reverses the 2nd and 4th quarters of the notes like this:

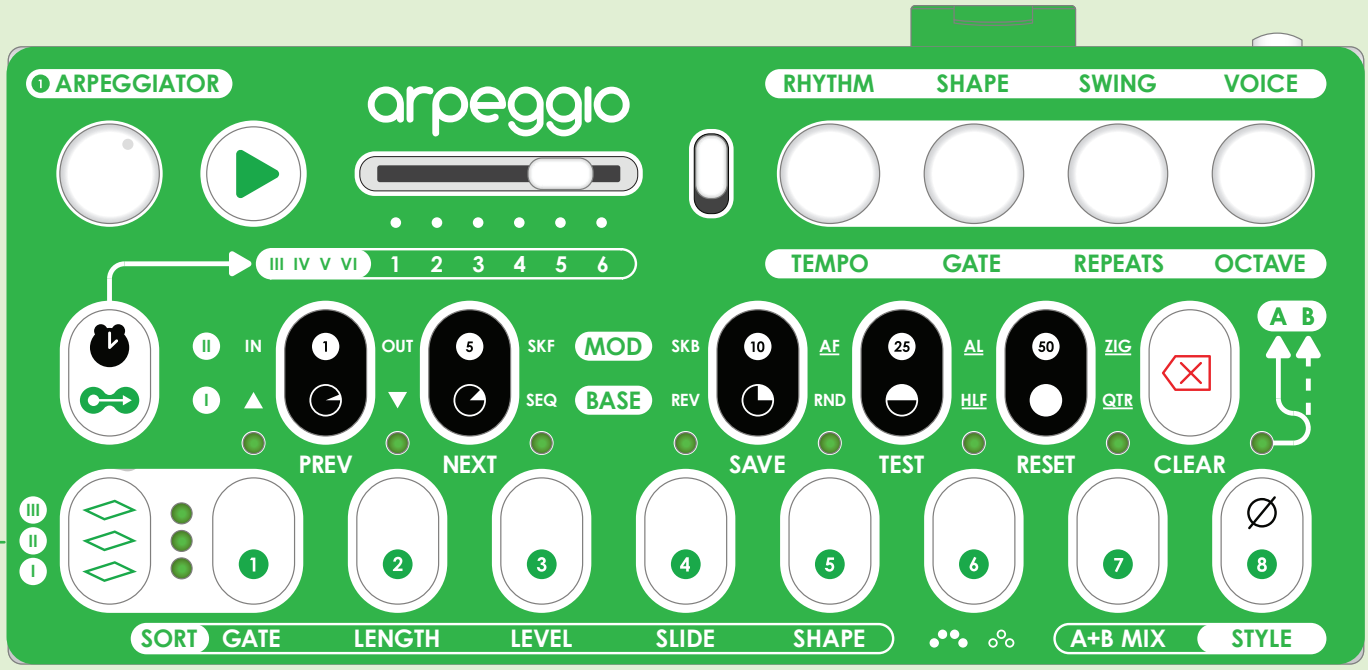
1-2 3-4 5-6 7-8 becomes **1-2 4-3 6-5 8-7**

Mod Order Page - LED II (Middle)

The **Mod Order Page** is where you can add modifiers to the base note orders that you've applied to **Part A** and **Part B**. These modifiers will transform your arp styles into something new. Push the **Pages Button** until only the middle LED (**II**) is lit to enter this page.

About Modifiers

Modifiers are optional. Choose one **Primary** and one **Secondary** for each style **Part A** and **B.**



Mod Order Page - Primary Modifier Buttons

There are four **Primary Modifier** options. These will take your base note order and apply a transformation to it. Consider the base note order of an eight note melody represented as numbers: **1-2-3-4-5-6-7-8** and see how each of these options would modify this note order:

IN (**Inside Out**) starts with the middle note and moves outwards back and forth: **4-5-3-6-2-7-1-8**
OUT (**Outside In**) starts with the first note and moves inwards back and forth: **1-8-2-7-3-6-4-5**
SKF (**Skip Forward**) Plays odd numbered notes and then even numbered notes: **1-3-5-7-2-4-6-8**
SKB (**Skip Backward**) Plays odd numbered notes and then even numbered notes backwards: **1-3-5-7-8-6-4-2**

Push one of the four **Primary Modifier Buttons** to apply the modifier. The labels for each mod are on the 2nd row above the LED for each button, arranged horizontally across from the (**II**) which corresponds with the same (**II**) next to the **Pages Button**.

Style A B Button

The LED above tells you which style part is being set: on (**A**) or off (**B**).

Mod Order Page - Secondary Modifiers

There are three **Secondary Modifier** options. These options will further transform the note order. These options make the melody longer. Consider again the **1-2-3-4-5-6-7-8** melody:

AF (**Alternating First**) Plays the first note every other note: **1-2-1-3-1-4-1-5-1-6-1-7-1-8**
AL (**Alternating Last**) Plays the last note every other note: **8-1-8-2-8-3-8-4-8-5-8-6-8-7**
ZIG (**Zig-Zag**) Goes up two notes and back one: **1-3-2-4-3-5-4-6-5-7-6-8**

Arp Bank Pages - Arp Bank Pages Button

There are four **Arp Bank Pages** and each page holds six **Arp Styles**. The **Bank Pages Button** cycles through these pages. The six **Arp Styles** on the current page become the new defaults accessible everywhere including from the main interface. They will load when Arpeggio is turned on. The three LEDs (**I**, **II**, **III**) beside the **Pages Button** show what Bank is active:

III: .....**Arp Bank Page III** (default)
III + I: .....**Arp Bank Page IV**
III + II: .....**Arp Bank Page V**
III + II + I: .....**Arp Bank Page VI**

Arp Bank Pages - LED III (Top + Other LEDs)

The **Arp Bank Pages** let you quickly switch between saved arp styles in all banks. Push the **Pages Button** until the top LED (**III**) is lit to enter these pages.

A+B Mix Button

This button is also accessible from the **Arp Bank Pages**. See **Page 19**.

Arp Bank Pages - Arp Style Buttons

The six **Arp Style Buttons** serve the exact same function as the six position **Arp Style Switch**, but the buttons let you switch between different styles much faster which is useful in a performance scenario. When an arp style is selected, the LED above that button will illuminate.

Rhythm Encoder and Button

The **Arp Rhythm Page** lets you edit a rhythm sequence of up to 16 steps for each arp style. Each step can either play a note in your melody, or be a rest where no note will play for one note length. Hold down the **Rhythm Button** to access the **Arp Rhythm Page**, and release the **Rhythm Button** to exit. The **Arp Rhythm** defaults to 16 steps. Turn the **Rhythm Encoder** to the left to shorten the rhythm sequence and to the right to lengthen it. The length will display on the 8 LEDs.

Swing Encoder

Certain styles of music utilize a rhythmic dynamic known as swing. With a swing rhythm the off beats or even numbered notes in a melody are slightly delayed. Swing rhythm is also known as shuffle. The swing percent amount is set to zero by default. Turn the **Swing Encoder** to the right to increase the swing amount and to the left to decrease it. As the swing amount is increased, listen as the delay between even and odd numbered notes increases.

Function Switch

Flip the **Function Switch** up in order to access the **Rhythm Encoder** and the **Swing Encoder**.

Arp Rhythm Page - Section Toggle Button

Push the **Section Toggle Button** to switch between the two rhythm sections active on the **Rhythm Step Buttons** and displayed on their LEDs. The 1st section is steps 1- 8, and the 2nd is steps 9-16. LED (**I**) will blink for the 1st section and LED (**II**) will blink for the 2nd.

Arp Rhythm Page - Rhythm Step Buttons

The eight **Rhythm Step Buttons** represent steps 1- 8 or 9-16 depending on the selected rhythm section. When an LED above a button is on, that step will play a note in your melody. When an LED is off, that step will be a rest. Push a button to toggle notes and rests.

Edit and Add Dynamics to Your Sequences

The **Sequencer Overlay** lets you dive deeper into your saved sequences and change the pitch or octave of any note, add slide notes where you want, adjust swing, and note probability. Here you can also customize global settings and create sequence frequency patterns to add sections of silence before or after your melodies. To activate the overlay, load the sequence you want to edit, then hold down the **Play Button** and press the **Bank 2 Button** . To exit, hold down the **Play Button** and press the **Bank Level Button**.

Black Buttons Functions

PREV - Load the previous sequence.
NEXT - Load the next sequence bank.
SAVE - Save your changes to the current sequence to the SD Card.
SLIDE - Add a slide to the current note.
RESET - Undo all changes you've made to the sequence without saving.
DELETE - Delete the last note.

Chance Encoder

The **Chance Encoder** adjusts the probability that a note in your sequence will or will not play. When a note doesn't play it's replaced by a rest of the same length. Turn to the right to decrease the chance that a note will play and add some random variation to your melody. Turn to the left to increase.

Function Switch

Flip the **Function Switch** up in order to access the **Chance Encoder**.

Global Sequence Read Setting Buttons

When a sequence is saved to the SD Card the following parameter values are also saved to each sequence file: **Arp Style**, **Transpose**, **Repeats** (including both kinds of **Octave Repeats**), **Voice**, **Swing**, and **Chance**. The **Tempo** is written to the song file, so all eight sequences in a song will have the same **Tempo**. These buttons give you the option to individually ignore each of these saved settings. When an LED above a button is on, that parameter will be read, when it is off the setting will be ignored. When a setting is ignored, Arpeggio's current value of this parameter is used instead. This is useful for example if you want to transpose several sequence while you are playing, or keep the same Arp Style across multiple sequences without going in to each sequence, changing the arp style, and saving.

Scrub Encoder and Button

Turn the **Scrub Encoder** to move or "scrub" through each note in your sequence one by one. Each time the encoder clicks, it will advance to the next and that note will play. When you scrub through your sequence, notes will play in the order they were entered. When you hold down the **Scrub Button** the **12-Note Keyboard** and **Rest Button** will activate and you can replace the current note. You can also replace notes live in the same way while your sequence is playing. Just press the **Play Button**, but be sure to set the **Arp Style** to **SEQ** or the note you replace might not be the note that is currently playing.

Function Switch

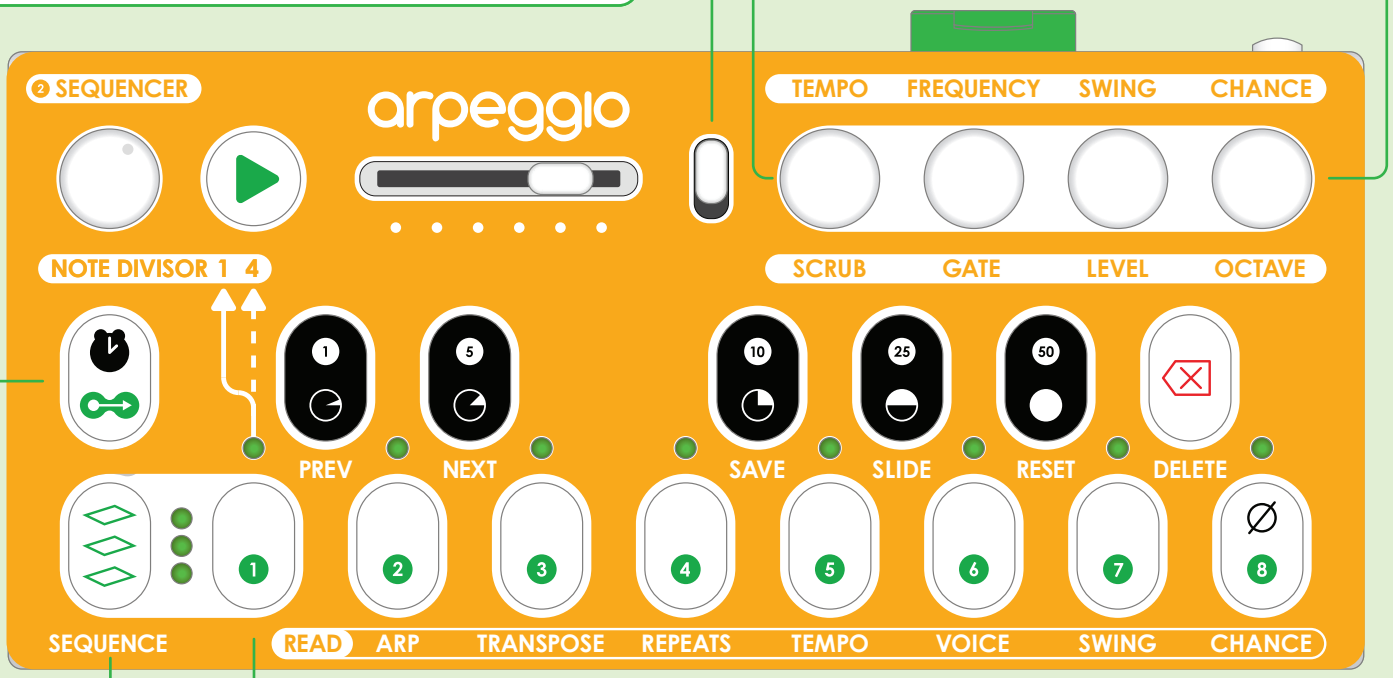
Flip the **Function Switch** down to access the **Scrub**, **Level**, and **Octave Encoders** and **Buttons**.

Time Button - Set the Current Note Length

Set the length of the current note while scrubbing through a sequence or playing a sequence live. Hold down the **Time Button** then push one of the **Black Buttons** to change the current note's length.

Level and Octave Encoders and Buttons

Use these controls while scrubbing through notes or playing a sequence live. Turn the **Octave Encoder** to select an octave and push the **Octave Button** to alter the octave of the current note. The **Level Encoder** and **Button** work the same way to set the level or volume of the current note.



Note Divisor 1 4 Button

Toggles the **Note Divisor** which sets the default note lengths accessible from the **Black Button**. When the LED is off, the **Black Button** note lengths will be: **Sixty-Fourth** [◷], **Thirty-Second** [◷], **Sixteenth** [◔], **Eighth** [◓], **Quarter** [●].

Bank Level Button and Bank Buttons

These buttons behave as they do in **Sequencer Mode.** When a sequence is selected and loaded, the **Bank Buttons** return to their **Sequencer Overlay** functionality.

Frequency Encoder and Button

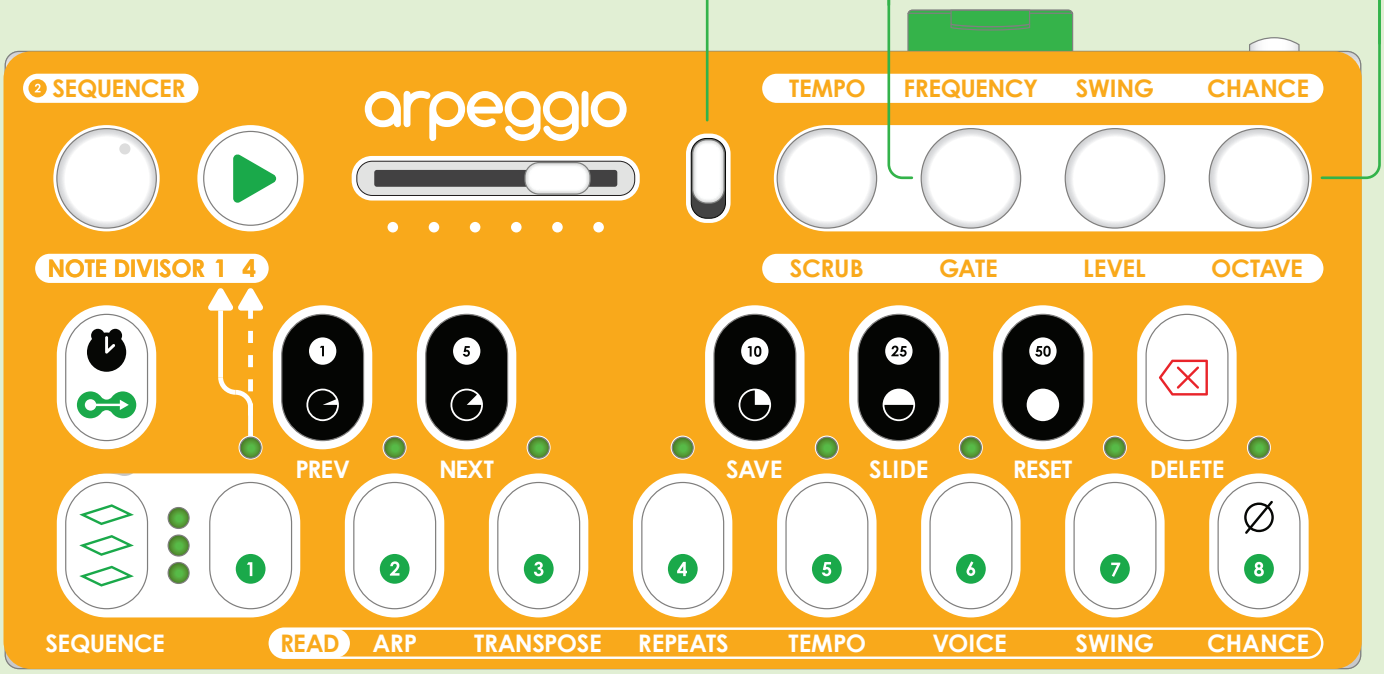
Sometimes you don't want a melody to play constantly in order to leave space for the other instruments in your composition. The **Sequence Frequency Page** lets you edit a **Sequence Frequency Pattern** of up to 16 steps that is saved with each sequence. Each step can either play the sequence or wait silently for the length of the sequence. To access the **Sequence Frequency Page** hold down the **Frequency Button**. Release the **Frequency Button** to exit the page. The **Frequency Pattern** defaults to 16 steps. Turn the **Frequency Encoder** to the left to shorten the **Frequency Pattern** and to the right to lengthen it. The length will display on the 8 LEDs.

Function Switch

Flip the **Function Switch** up to access the **Frequency Encoder** and **Button**.

Encoder Functions

The **Tempo**, **Gate**, and **Swing Encoders** behave as they do elsewhere.



Frequency Page - Section Toggle Button

Push the **Section Toggle Button** To switch between the two **Sequence Frequency Pattern** sections active on the **Pattern Step Buttons** and displayed on their LEDs. The 1st section is steps 1- 8, and the 2nd is steps 9-16. LED (**I**) will blink for the 1st section and LED (**II**) will blink for the 2nd.

Frequency Page - Pattern Step Buttons

The eight **Pattern Step Buttons** represent steps 1- 8 or 9-16 depending on the selected pattern section. When an LED above a button is on, that step will play your melody. When an LED is off, that step will be silent for the length of your melody. Push a button to toggle the sequence on and off for that step.

Create and Save Custom Sounds

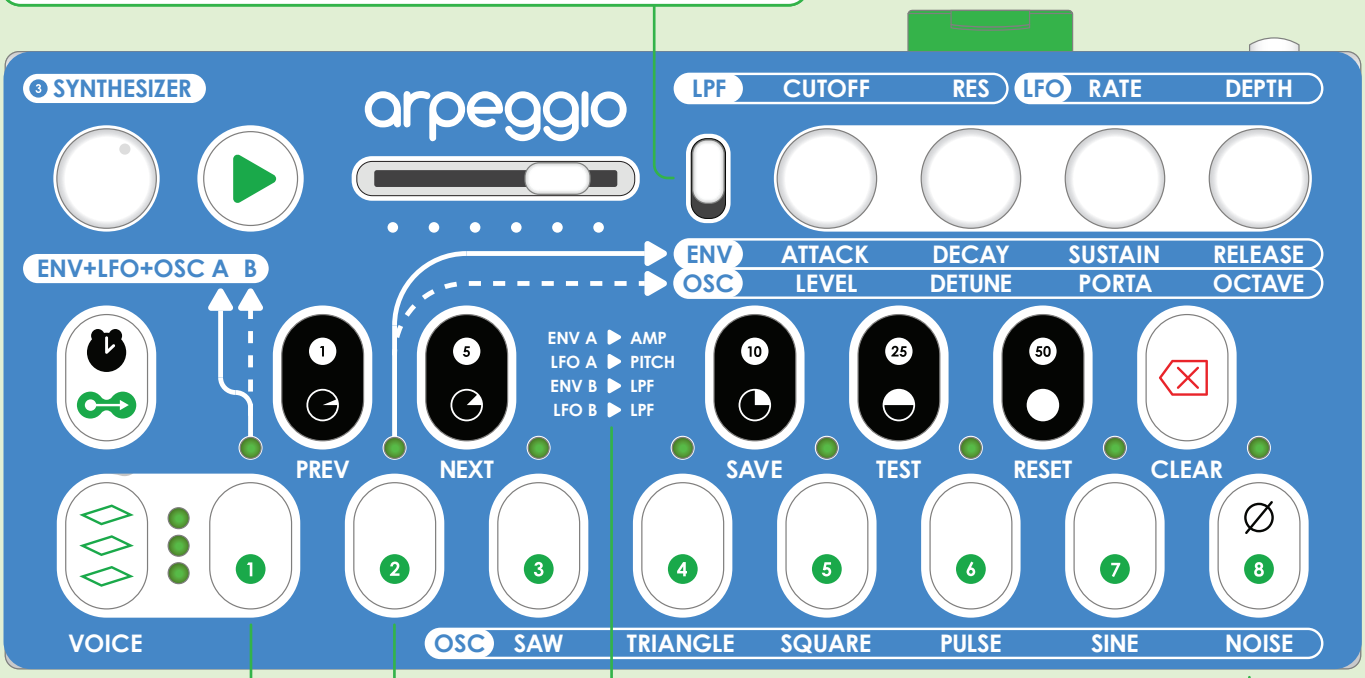
The **Synthesizer Overlay** lets you explore new sonic territory, tweak and fine tune Arpeggio's built-in synth engine, and create and save your own custom synth presets. Hold down the **Play Button** and press the **Bank 3 Button** to activate the overlay. To exit, hold down the **Play Button** and press the **Bank Level Button**.

Function Switch

Flip the **Function Switch** up to access the parameters of the **Low Pass Filter** and **Low Frequency Oscillator's**, or down to access the parameters of the **Envelopes** and the **Oscillators**.

Black Buttons Functions

PREV - Load the previous synth voice.
NEXT - Load the next synth voice.
SAVE - Save your changes to the current synth voice to the SD Card.
TEST - Trigger a note to hear what the current synth setting sounds like.
RESET - Undo all changes you've made to the current synth voice without saving.
CLEAR - Clears all parameter settings.



ENV+LFO+OSC A B Button

Toggles between groups **A** and **B** of the **Envelopes**, **Low Frequency Oscillators** and **Oscillators**. When the LED above the button is on, you have access to **Group A**. When the LED is off, you have access to **Group B**.

Synth Architecture Reference

A little guide to inform you that:
1. **Envelope A** affects the **Oscillator's Amplitude**
2. **LFO A** affects the **Oscillator's Pitch**
3. **Envelope B** affects the **Low Pass Filter**
4. **LFO B** affects the **Low Pass Filter**

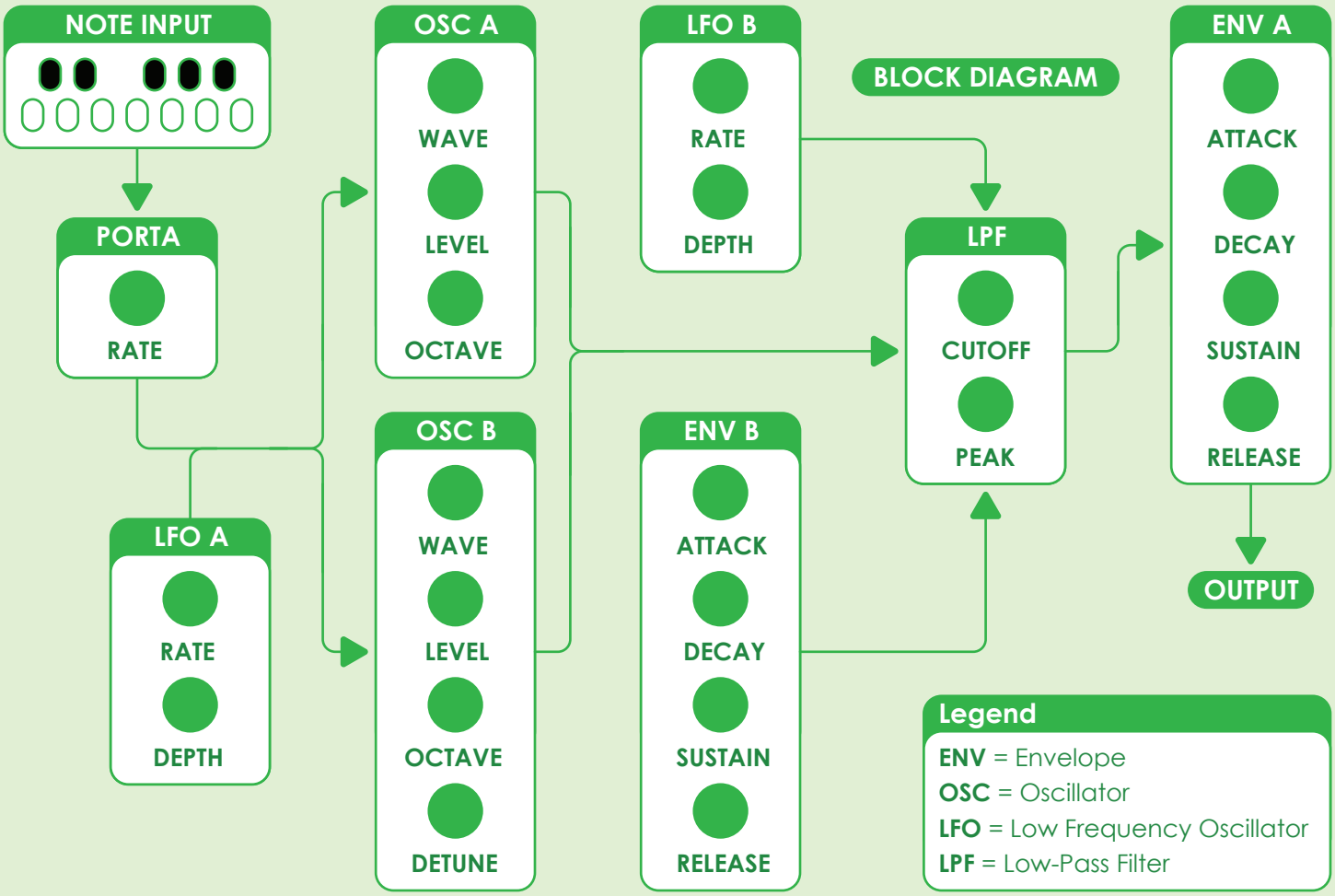
See **Page 28** for more on the Synth Architecture.

Function Button

This button toggles between the parameters of the **Envelopes** and **Oscillators** on the **Rotary Encoders** when the **Function Switch** is in the down position. When the LED above the button is on, you have access to the **Envelope** parameters. When it's off, you have access to the **Oscillator** parameters.

Oscillators Waveform Selector Buttons

The currently accessible **Oscillator** (**A** or **B**) will display the assigned **Waveform** by illuminated an LED above the buttons. Push one of the buttons to change the **Waveform**.



The Synthesizer Architecture

The synthesizer architecture shown here is designed to reproduce a wide range of timbres. The synth is monophonic, which means it plays one note at a time.

Envelopes (ENV A and B)

Envelope A controls the amplitude shape of the **Oscillators** and **Envelope B** controls the range shape of the **Low-Pass Filter**. Each envelope is composed of four parts: **Attack**, **Decay**, **Sustain**, and **Release**.

Low Frequency Oscillators (LFO A and B)

LFO A modulates the pitch of the **Oscillators** and **LFO B** modulates the range of the **Low-Pass Filter**. The **Depth** parameter determines how far up and down the LFO will move. The **Rate** parameter controls how fast the modulation moves up and down.

Oscillators (OSC A and B)

Oscillators A and **B** both generate the pitch frequency of the note being played. The **Wave** shape of each is independently selectable between 6 options: **Sawtooth**, **Triangle**, **Square**, **Pulse**, **Sine**, and **Noise**. The **Octave** of each oscillator is switchable between 3 settings: Low, Middle, and High. The **Level** or volume of each oscillator is independently adjustable which allows the output mix of each waveform to be fine-tuned. **Oscillator B** also has a **Detune** parameter which allows for various effects from a subtle undulation of the sound to the generation of harmonic notes (see Page 29).

Low Pass Filter (LPF)

The **LPF** alters the harmonic content of the **Oscillators**. The **Cutoff** parameter adjusts the frequency at which sounds are removed or filtered out of the audio output. The **Res (Resonance)** parameter boosts the frequencies directly below the **Cutoff** point.

About MIDI

MIDI, the Musical Instrument Digital Interface is a common communications protocol that allows different electronic music devices to communicate with each other. Arpeggio sends and receives different types of MIDI messages including Note-On, Note-Off, Control Change, and Beat Clock messages.

Oscillator B Detune Table

The **Detune** parameter (CC #74) of **Oscillator B** can be set to pitch intervals relative to **Oscillator A**. The pitches are located at the top end of the **Detune** range equal to the following MIDI values:

115	**Off**
116	**1/2 step**
117	**1 step**
118	**1 1/2 steps**
119	**2 steps (3rd)**
120	**2 1/2 steps**
121	**3 steps**
122	**3 1/2 steps (5th)**
123	**4 steps**
124	**4 1/2 steps**
125	**5 steps**
126	**5 1/2 steps (7th)**
127	**6 steps (Octave)**

Setting MIDI Channels

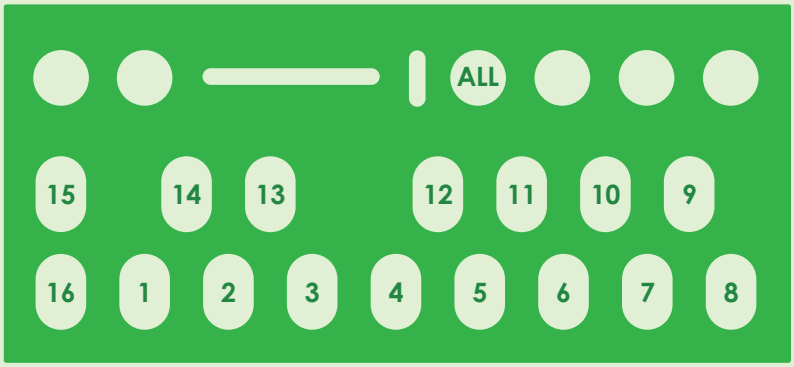
MIDI Protocol provides 16 separate send and receive channels for connected devices to communicate. Individual device can be assigned to different channels so that specific messages can be directed to those devices and ignored by other devices that are not assigned to those channels. Send and receive channels can be set at startup:

1. Flip the **Function Switch** down to set send channel or up for receive channel.
2. Hold down the specified button.
3. Turn Arpeggio on.

MIDI CC Messages

All of the synthesizer parameters can be altered over MIDI via the CC (Control Change) messages listed below:

Pitch Bend	**1**
Portamento	**5**
Oscillator A - Wave	**3**
Oscillator A - Level	**20**
Oscillator A - Octave	**14**
Oscillator B - Wave	**9**
Oscillator B - Level	**21**
Oscillator B - Octave	**15**
Oscillator B - Detune	**74**
Envelope A - Attack	**73**
Envelope A - Decay	**75**
Envelope A - Sustain	**76**
Envelope A - Release	**72**
Envelope B - Attack	**70**
Envelope B - Decay	**77**
Envelope B - Sustain	**78**
Envelope B - Release	**79**
Low Frequency Oscillator A - Rate	**24**
Low Frequency Oscillator A - Depth	**25**
Low Frequency Oscillator B - Rate	**22**
Low Frequency Oscillator B - Depth	**23**
Low Pass Filter - Cutoff	**94**
Low Pass Filter - Peak	**71**



Button Assignments to Set MIDI Channels

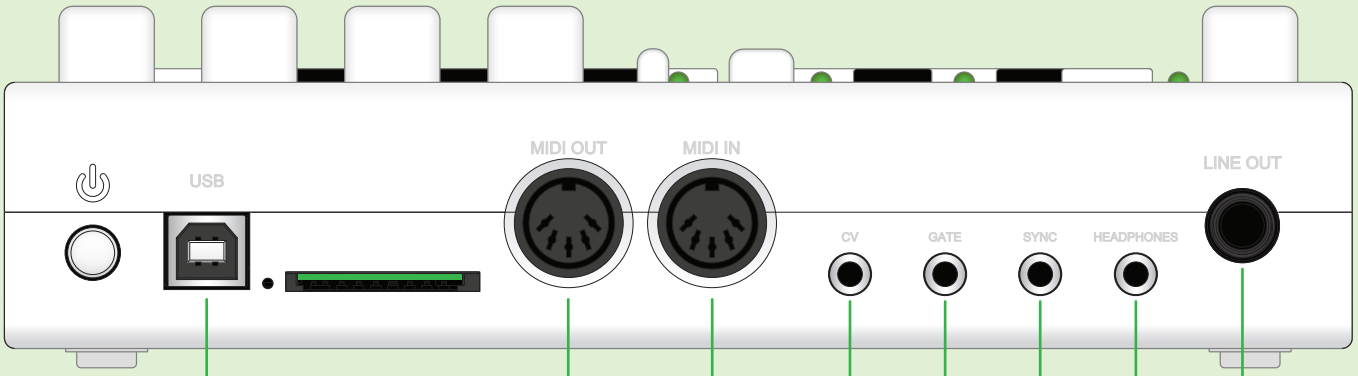
Only the receive channel can be set to "ALL".

Arpeggiator For External Synths

Arpeggio can be added as an arpeggiator to synthesizers that have the option to turn off "local control" (separating the keyboard controller from the sound engine). To do this, turn off "local control" and connect Arpeggio's MIDI out to the synth's MIDI in, and Arpeggio's MIDI in to the synth's MIDI out.

MIDI Bridge and MIDI to CV/Gate

In **Synthesizer Mode**, MIDI input received over any of the three MIDI inputs (5-pin DIN, USB, or Bluetooth LE) will be output over the other two outputs. Any MIDI note data that Arpeggio receives will also be output as control voltage and gate signals. The control voltage pitch range is five octaves so MIDI notes that are too high or love will be transposed to conform to the five octave range.



MIDI Out

Connect to the MIDI input of synthesizers, sound modules, or devices that receive MIDI clock.

Audio Outputs

capture the audio output of Arpeggio's built-in synthesizer by connecting to recording devices and computer audio interfaces.

USB MIDI In / Out

Connect to your computer or mobile device to interface with your DAW (digital audio workstation) and software instruments.

MIDI In

Connect to the MIDI output of keyboard MIDI controllers, or devices like drum machines that send MIDI clock.

Sync Out

Sync sends analog tempo signals in the form of +5 Volt pulses at 24 PPQ (pulses per quarternote). Connect to the Sync input of devices like drum machines and samplers that receive sync signals.

CV and Gate Outs

CV (Control Voltage at 1 volt per octave) sends analog note pitch values, and Gate sends analog note on and off signals. Connect these to modular and analog synthesizers.

Bluetooth MIDI In / Out

Send MIDI messages wirelessly to computers and mobile devices with MIDI over Bluetooth LE (Low Energy) connections.

Updating Arpeggio's Firmware

Follow these steps to update Arpeggio's firmware:

1. Copy both firmware files "**ARPEG_M.bin**" and "**ARPEG_T.bin**" from your computer to the SD Card.
2. With Arpeggio turned off, insert the SD Card.
3. Turn Arpeggio on and wait about ten seconds. Arpeggio will automatically install the firmware and then delete the files from the SD Card.
4. After the LEDs finish lighting up, turn Arpeggio off and on again.

Backing Up Arpeggio's Data

To back up Arpeggio's data you may copy any or allof these files to your computer:

- Each set of sequences is stored in folders "SET1", "SET2", "SET3" etc.
- Inside each set folder are song folders "SONG1", "SONG2", "SONG3" etc.
- Inside each song folder are sequence data files "SEQ1.dat", "SEQ2.dat", "SEQ3.dat" etc.
- ARPEGGIO.dat, and files called SET.dat and SONG.dat contain information about the contents of different banks and bank levels.
- 24 Arpeggiator style data files "ARPA.dat", "ARPB.dat", "ARPC.dat" through ARPX.dat" are stored in a folder called "ARPS".
- 24 Synthesizer voice preset data files "SYNTHA.dat", "SYNTHB.dat", "SYNTHC.dat" through SYNTHX.dat" are stored in a folder called "SYNTH".
- All global settings are stored in a file called SETTINGS.dat.