

# Welcome to DopplerPad

Quickly create and perform musical hooks, phrases and loops with a variety of custom synth and sample-based instruments. Make samples on the fly and weave them into compositions.

DopplerPad is an expressive touch instrument designed exclusively for iPhone & iPod Touch. Use rhythmic and melodic automation to create phrases by freely moving fingers around the musical touchpad.

Drags and taps come to life with responsive visual feedback, making the groove visible.

## Screen Views



*Left to Right: Pad A, Mixer, Pad B*

DopplerPad has three main screens: two musical touchpads on either side of a mixer. Imagine the classic DJ set-up with two turntables and a mixer in the middle. DopplerPad opens to the mixer, and tap Pad A or Pad B to view the touchpads.

## Musical Touchpads



Pad A and Pad B provide instruments and tools to construct solos, loops, and phrases.

## Playing the Touchpad

Drag and tap the large center area to create sounds and visuals. The horizontal and vertical axes control various sound parameters (e.g. slide left to right to change pitch, slide up and down to modify a filter).

The velocity at which you tap the device controls the volume of the note you're playing.



Velocity is like pressing a piano key harder or softer to play louder or quieter notes.

## Using Instruments

DopplerPad has 6 classes of instruments: Bass, Drums, FX, Lead, Pad and Sampler, each with a designated color.

### Selecting Instruments



*Instrument Menu*

To show or hide the Instrument Menu, tap the button labeled with the current instrument class. Swipe the menu to browse instruments, and tap to select.

### Pitch-Based Instruments

When playing pitch-based Instruments, the horizontal axis of the touchpad controls pitch, and the vertical axis controls a parameter such as a filter. Notes are delineated by vertical bars on the touchpad.



### Octave Control

The touchpad has a one-octave range. Swipe the Octave Control to the left or right to change the current octave. Each swipe shifts one full octave up or down from the current position.

The Octave Control displays the starting note of the scale and octave number in the lower left corner.



Changing the octave while playing a note will change it.

### Drum Kits

Drum Kits control several different sounds on the touchpad. When a Drum Kit is selected, the touchpad displays a grid, and each cell triggers a different sound from the kit.

### Samplers

After selecting a Sampler, a Sample button appears in place of the Octave Control. Tap the Sample button to start recording using the phone's microphone (or an external microphone if attached).



If you have an iPod Touch, you need to plug an external microphone into the headphones jack to record samples.

The Sampler records for four seconds or until you press the Stop button.

After recording a sample, a waveform of the audio shows on the screen. Tap anywhere on the waveform to start playing from that position in the sample.

Each Sampler retains its recording until you make a new sample.



You can create custom instruments by accessing the Synths tool within the Tools section of the main mixer.

### Using Effects

Effects are a handy way to modify existing or custom sounds and give them an added layer of complexity and richness. There are several built-in factory effects; each effect can be applied to any instrument or sample.

## Selecting an Effect



*Effects Menu*

To show or hide the Effects Menu, tap the button labeled "Effect." Tap to enable a particular effect from the menu, and the button will be illuminated along with the current selection in the menu. Tapping the effect name again in the menu will deactivate it, turning off any effect, and the button will reflect this off state.

## Editing Scales

Use the Scale Editor to create layered loops, phrases, and arpeggios that stay in key. The default scale is a chromatic scale (all 13 notes) from left to right.



*Scale Editor*

To show or hide the Scale Editor, tap the Octave Control. Tap an enabled piano key to disable it, and vice-versa. Disabled keys appear greyed-out and aren't available notes on the touchpad. This is reflected in the number of vertical lines on the touchpad.



*Scale Editor with Disabled Keys*

Change the starting note of the scale by swiping the Scale Editor right or left. The starting note and octave number are displayed in the corner.

Some useful scales (key of C):

Ionian	
Dorian	

Phrygian	 A piano keyboard diagram showing the Phrygian scale starting on C4. The notes are C4, B3, A3, G3, F3, E3, D3, C4. The B3 key is highlighted in a darker blue.
Lydian	 A piano keyboard diagram showing the Lydian scale starting on C4. The notes are C4, D4, E4, F#4, G4, A4, B4, C5. The F#4 key is highlighted in a darker blue.
Mixolydian	 A piano keyboard diagram showing the Mixolydian scale starting on C4. The notes are C4, D4, E4, F4, G4, A4, Bb4, C5. The Bb4 key is highlighted in a darker blue.
Aeolian	 A piano keyboard diagram showing the Aeolian scale starting on C4. The notes are C4, D4, E4, F4, G4, A4, Bb4, C5. The Bb4 key is highlighted in a darker blue.
Locrian	 A piano keyboard diagram showing the Locrian scale starting on C4. The notes are C4, Bb3, Ab3, Gb3, F3, E3, D3, C4. The Bb3 key is highlighted in a darker blue.
Major Blues	 A piano keyboard diagram showing the Major Blues scale starting on C4. The notes are C4, D4, E4, F4, G4, A4, Bb4, C5. The Bb4 key is highlighted in a darker blue.
Minor Blues	 A piano keyboard diagram showing the Minor Blues scale starting on C4. The notes are C4, D4, Eb4, F4, G4, Ab4, Bb4, C5. The Eb4 key is highlighted in a darker blue.
Diminish	 A piano keyboard diagram showing the Diminished scale starting on C4. The notes are C4, D4, Eb4, F4, G4, Ab4, Bb4, C5. The Eb4 key is highlighted in a darker blue.
Combination Diminish	 A piano keyboard diagram showing the Combination Diminished scale starting on C4. The notes are C4, D4, Eb4, F4, G4, Ab4, Bb4, C5. The Eb4 key is highlighted in a darker blue.
Major Pentatonic	 A piano keyboard diagram showing the Major Pentatonic scale starting on C4. The notes are C4, D4, E4, G4, A4, C5. The D4, E4, G4, and A4 keys are highlighted in a darker blue.
Minor Pentatonic	 A piano keyboard diagram showing the Minor Pentatonic scale starting on C4. The notes are C4, Eb4, F4, G4, Ab4, C5. The Eb4, F4, and Ab4 keys are highlighted in a darker blue.

Raga Bhairav	
Raga Gamanasrama	
Raga Todi	
Spanish Scale	
Gypsy Scale	
Arabian Scale	
Egyptian Scale	
Hawaiian Scale	
Bali Island Pelog	
Japanese Miyakobushi	
Ryukyu Scale	

Wholetone	
Minor 3rd Interval	
3rd Interval	
4th Interval	
5th Interval	

## Using the Gate/Arpegiator

The Gate/Arp Control is a groove and rhythm tool. It creates complex rhythmic phrases that sync to the tempo.

Gate/Arp patterns are 4 beats (1 bar) long and subject to the loop's tempo. When the Gate/Arp is on, any sounds played on the touchpad are limited to the Gate/Arp pattern. Play the pattern by holding your finger down on the touchpad.

### Enabling Gate/Arp



Tap the Gate/Arp button to enable or disable gating. When enabled, the yellow light is lit.



You can enable and disable the Gate/Arp while holding notes.

## Editing the Gate/Arp Pattern



*Gate/Arp Editor*

The Gate/Arp Editor is to the right of the Gate/Arp enable/disable button. Tap it to show or hide the Gate/Arp Editor.

The numbered vertical bars represent one beat. Tap to create short notes; tap and drag to create long notes. Tap to remove notes, or tap and drag to erase a section. Adjust the intensity of each note's dynamic by selecting Soft, Med or Hard before adding notes to the pattern.

Sliding the shuffle node to the right will increase the amount of rhythmic syncopation added to the pattern during playback; the higher the shuffle, the more pronounced the syncopation.

 You can edit the pattern while holding a note.

## Loops & Recording

### Loop Timeline



*Loop Timeline: 8 Beat Loop*

Across the top of the touchpad is the Loop Timeline, which is divided into beats and bars and displays the number of beats in the loop.

When a loop plays, a green block progresses from left to right, indicating the current beat.

## Loop Menu



### Loop Menu

Tap the Loop Timeline to show or hide the Loop Menu.

## Controlling Tempo

Tempo, measured in BPM (Beats Per Minute), affects the speed at which loops record and Gate/Arp patterns play. To change the tempo, tap and hold the arrow to the left or right of the current tempo.



Once you've made a loop, changing the tempo will not change the playback speed of what you recorded.

## Controlling Loop Length

Loops can be set to 1, 2, 4, 8 or 16 beats by tapping the corresponding button.



Change the Loop Length on existing loops for fun effects.

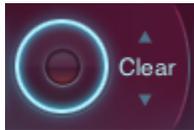
## Beat Shift

Beat shift is an easy way to synchronize the current touchpad with the other pad. Tapping the arrows left or right will snap the current touchpad's playback backward or forward, allowing you to more easily synchronize when pads are playing simultaneously at the same tempo.

## Recording a Loop



*Record Control: <Rec> Mode*



*Record Control: <Clear> Mode*

The Record Control records loops in two different modes. Switch modes by tapping <Rec> or <Clear>.

### **<Rec> Mode:**

Tap the round button while <Rec> is displayed to start recording. Recording continues until the round button is tapped again.

Recording in this mode adds anything you play to the loop, even when audio is already recorded.

### **<Clear> Mode:**

Tap and hold the round button while <Clear> is displayed to clear or replace parts of the loop. While you hold the button, the existing recorded audio will be deleted. This will stop as soon as you release the button.

In <Clear> mode, anything played is recorded, but the new audio replaces the existing loop for as long as you hold the button.



Clear out bits of a loop to create interesting rhythmic variations.

## Playing Loops



*Play Control*

Tap the Play Control to play or stop a loop.

If a loop is playing on the other touchpad, playing the current touchpad will automatically sync to the "nearest beat" so both stay in step.

## Mixer



*Mixer View*

The Mixer provides the ability to crossfade, play, stop, mute and "beat cut" both touchpads. Save and load loops in this view.

## Using the Crossfader

The Crossfader fades between the two touchpads. The touchpads play at equal volume when the Crossfader is centered. Slide the Crossfader to change the mix.



Tap anywhere on the Crossfader bar to jump to that position.

## Controlling Loops from the Mixer

### Play/Stop

Tap the Play button to start and stop the loop.

### Mute

Hold the mute button to silence a touchpad.

## Beat Cut



### *Beat Cut Control*

The Beat Cut Control displays the current beat of the loop. Hold the Beat Cut Control to continuously play the current beat. The loop continues from the current position when released.

## Auto Sync

The playback of the two touchpads stays in beat sync as you load and play loops.



If the touchpads have different tempos, the sync is not retained.

## Using the Loop Bank



### *Loop Bank*

The Loop Bank saves and manages loops. Every loop is displayed by the colors and squares that are played on the touchpad. Saved loops also display the tempo, loop length, and starting key.

## Saving Loops

Drag a loop from a touchpad on the side of the mixer to a cell in the Loop Bank to save it.

## Loading Loops

Drag a loop from the Loop Bank to either touchpad to load it, play back, record, and modify as normal.

## Duplicating Loops

Drag a loop to another cell to create a copy.

 Dragging a loop to a cell occupied by another loop overwrites that loop.

## Deleting Loops

Drag the loop from the bank or the touchpad to the trash can in the center of the screen to delete it.

## Tools



Accessible from the bottom of the mixer, there are several tools to enhance functionality. Tap the Tools button to browse available options.

# AudioCopy



AudioCopy will copy audio from DopplerPad and prepare it for pasting into another compatible app. The output of the mixer is copied, meaning that the loops on both pads with the current crossfade setting will be copied.

 If the Pads have different tempos, the **slower** of the two tempos will be recorded as the BPM of the copied loop. This can cause unexpected results when pasting, so note the tempos of your pads.

## Preview

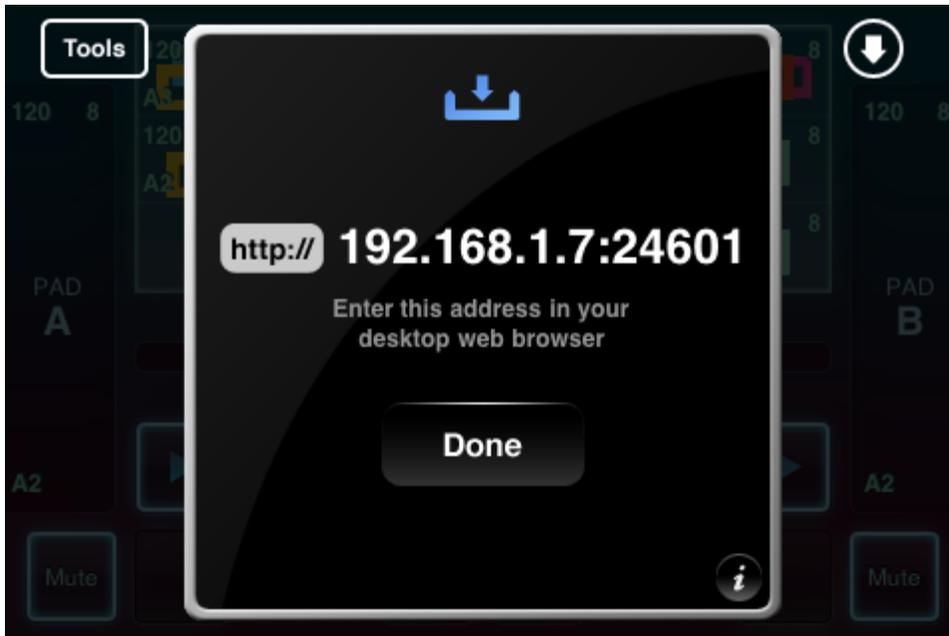
Press the preview button to audition the loop to be copied.

## Compatible Apps

Tap "See compatible apps" or the info button to view a list of apps that are AudioCopy/AudioPaste enabled. New apps are being added all the time!

## Wifi Sync

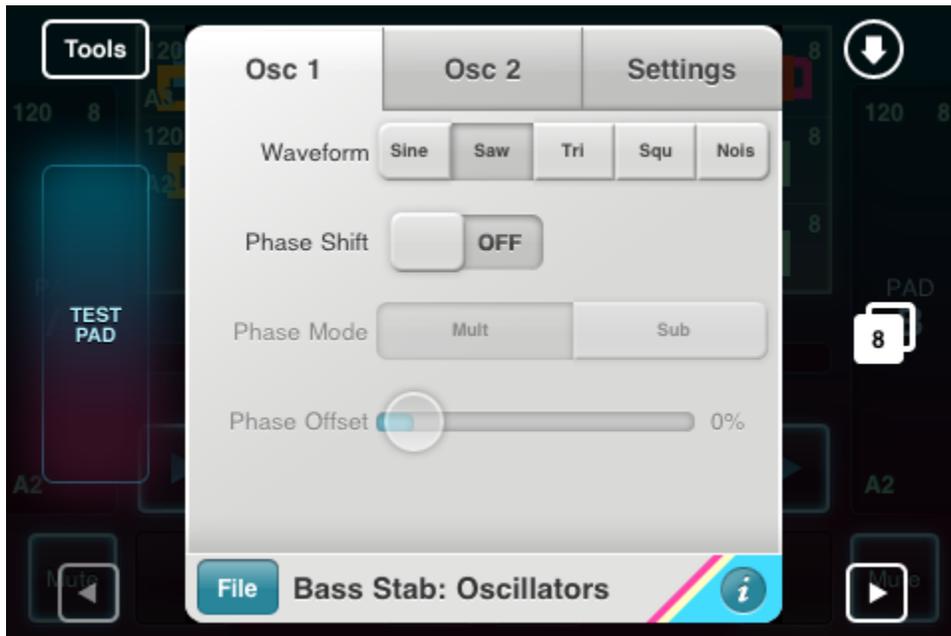
Make sure your iPhone and computer are connected to the same Wifi network. Press on the Tools button in the mixer screen, then tap the WifiSync button in the Tools menu.



A black screen will appear with an IP address that looks something like **http://192.168.0.101:24601**.

At this point you can use a web browser to download your tracks as .wav files to be used in most desktop recording programs. Type the IP address into your browser address bar, and then approve the connection on your phone by tapping the OK button. The app should display a "Connected" message, and the web browser will refresh to reveal the mixer interface with each loaded loop as a downloadable .wav file. When finished, just tap the done button on the app and then exit the Tools window to return to the main app.

# Synths



The Synths tool is an editor for creating and saving new, custom synth sounds for use with DopplerPad. While editing a synth, use the test pad on the left to hear what it sounds like.

## Modifying existing sounds

To edit an existing factory sound, just select it from the initial list. Factory sounds cannot be replaced with changes; any edits made must be saved as a new custom sound.

## Creating a new sound

To create a completely new synth sound, select a category and then tap "New".

## Oscillators

The DopplerPad synthesizer has at its core 2 oscillators which generate the basic sound of the synth. The Oscillators panel controls the basic parameters of these two oscillators. Oscillator 2 can be enabled or disabled altogether.

- **Osc 1 and 2**
- **Waveform:** Pick from 5 different waveform generators: Sine, Saw, Triangle, Square and Noise. Each has a distinct sound.

- Phase Shift: Enabling phase shift will create a duplicate waveform for the oscillator, allowing you to create more complex waveforms out of the existing one.
- Phase Mode: Sub will subtract the two waveforms from one another, while multi will multiply them with each other.
- Phase Offset: The distance between the two waveforms; more dramatic offset will cause more of a change in the resulting sound.
- **Settings**
- Octave Diff: Sets the octave of Osc 2.
- Freq Diff: Fine tunes the frequency (pitch) of Osc 2.
- Mix: Sets the mix between Osc 1 and Osc 2.

## Amp Envelope

Amp envelope controls the basic amplitude (volume) over time. Amp envelope is also known as ADSR (Attack, Decay, Sustain, Release).

- Attack: The number of milliseconds (ms) it takes for the sound to reach full volume each time it's activated (longer attacks are ideal for pad-style synths).
- Decay: How quickly the sound falls to the sustain level after the attack peak.
- Sustain: The sustained (or constant) volume at which the sound remains after the decay; the sustain level lasts as long as the note is held down.
- Release: How quickly the sound fades out after the note is released.

## Filter

There are two types of filter for any DopplerPad instrument. Low pass filters pass low frequency signals, attenuating (reduce the amplitude of) signals with frequencies higher than the cutoff filter you choose. High-pass filters do the opposite.

- Enabled: Turn the filter off and on.
- Filter Type: Choose high pass or low pass.
- Frequency: Sets the cutoff frequency of the filter. With low pass filter, signals *above* the selected frequency will be reduced. With high pass filter, signals *below* the selected frequency will be reduced.
- Q: Also known as resonance, Q affects the filter quality; setting a higher Q value will emphasize the frequencies around the set filter frequency.

## Mod Envelope

Similar to Amp Envelope, Mod (modulation) Envelope determines how one of several selected parameters are modified over time.

- Enabled: Turn the envelope off and on.
- Destination: Select which parameter the envelope will affect.
- Invert: "Flips" the envelope for all parameters. For example, instead of fading from zero to peak, attack will fade from peak to zero.
- Attack: Sets the number of milliseconds (ms) it takes for the selected parameter to reach peak value each time it's activated.
- Decay: Sets how quickly the selected parameter falls to the sustain value after the attack peak.
- Sustain: Sets the sustained value of the selected parameter. The sustain value lasts as long as the note is held down.
- Release: Sets how quickly the selected parameter fades to zero after the note is released.

## LFO

LFO stands for Low Frequency Oscillation. LFO allows you to set an oscillating modulation on a selected parameter.

- Enabled: Turn the LFO on and off.
- LFO Sync: If on, start the LFO over each time a note is triggered. If off, the LFO will continue oscillating whether or not you are playing a note.
- Destination: Select the parameter for the LFO to affect.
- Waveform: Select a waveform.
- Amount: Sets how dramatic of an effect the LFO has on the selected parameter
- Beat Sync: When off, you can set the frequency of the oscillation in hz. When on, the LFO is synced to the current tempo.
- Frequency: Set how rapid the LFO is.

## Mod Y

Mod Y lets you set how your finger movement on the Y-axis when playing on a pad will affect various parameters. Setting positive values means the closer to the top of the pad you move your finger, the greater the effect. Setting negative values means the closer to the top of the pad you move your finger, the lesser the effect.

- **Oscillators**
  - FreqDelta: sets the difference between frequency/pitch from top to bottom.
  - Phase Offset A: sets the extent to which Osc 1's phase offset is affected on the Y axis. Phase shift must be enabled for this to have any effect.
  - Phase Offset B: sets the extent to which Osc 2's phase offset is affected on the Y axis. Osc 2 must be enabled along with its phase shift for this to have any effect.
  - OSC Crossfade: Sets how much to affect the mix between the two main oscillators.
  - Decay: Sets how much to modify the amplitude decay (from the Amp Envelope panel).
- **Filter**
  - Filter Frequency: Sets how much to affect the Filter Frequency (from the filter panel).
  - Filter Q: Sets how much to affect the Filter Q (from the filter panel).
- **LFO**
  - LFO Amp: Sets how much to affect the LFO amount (from the LFO panel).
  - LFO Frequency: Sets how much to affect the LFO Frequency (from the LFO panel).

## Velocity

Similar to Mod Y, Velocity lets you set how tap velocity when playing on a pad will affect various parameters. Setting positive values means the harder you tap, the greater the effect. Setting negative values means harder you tap, the lessor the effect.

- **Oscillators**
  - FreqDelta: sets the difference between frequency/pitch from top to bottom.
  - Phase Offset A: sets the extent to which Osc 1's phase offset is affected by touch velocity. Phase shift must be enabled for this to have any effect.
  - Phase Offset B: sets the extent to which Osc 2's phase offset is affected. Osc 2 must be enabled along with its phase shift for this to have any effect.
  - OSC Crossfade: Sets how much to affect the mix between the two main oscillators.
- **Filter**
  - Filter Frequency: Sets how much to affect the Filter Frequency (from the filter panel).

- Filter Q: Sets how much to affect the Filter Q (from the filter panel).
- **LFO**
- LFO Amp: Sets how much to affect the LFO amount (from the LFO panel).
- LFO Frequency: Sets how much to affect the LFO Frequency (from the LFO panel).

## Meta Info

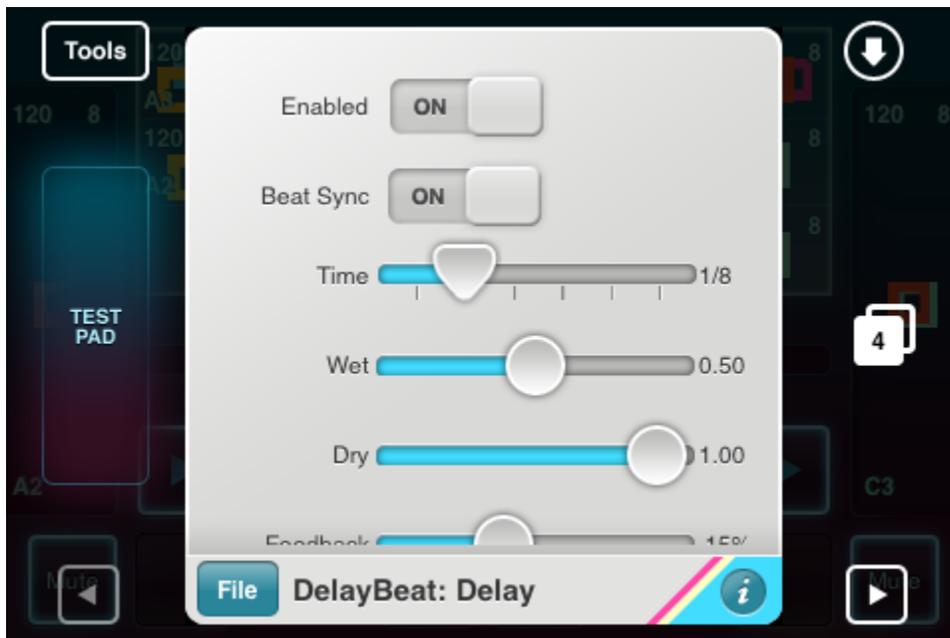
- Class: Sets the basic class (or category) of the selected instrument.
- Default Octave: sets the octave that will be used when this instrument is selected on a pad.

## Saving sounds

In order to save a custom sound, tap the "File" button in the lower left of the Synths editor. Selecting "Save" will overwrite your current custom sound. For newly modified versions of built-in factory sounds, or for altogether new sounds, "Save As..." must be used to give the file a unique name. Any time a sound has not been saved when the editor is closed, an alert dialog will ask whether changes should be saved or not; any newly customized sound will need to be named and saved.

## Effects

Effects are a handy way to modify existing or custom sounds and give them an added layer of complexity and richness. There are several built-in factory effects which can be modified and saved as unique new custom sounds, or new effects can be created altogether.



## Delay

Enabling delay can add a certain amount of depth or space to your sound or give it an extended echo effect.

- **Enabled:** Turn the delay off and on.
- **Beat Sync:** Turning this on will sync the delay with the current tempo.
- **Time:** The amount of time between instances of the delay. When beat sync is on, timing is based on intervals relative to the current tempo. When beat sync is off, this is a freely sliding increment.
- **Wet:** The higher the wetness, the louder the delay effect will sound.
- **Dry:** The higher the dryness, the more you'll hear the original synth sound before the delay begins. A value of 1.00 will include the original sound at 100% -- anything less will decrease its prominence relative to the delay.
- **Feedback:** The degree to which the delay effect feeds back. The higher the feedback, the louder and more gradual the decay of the delay effect will be.

## Delay Filter

There are two types of filter that can be applied. Low pass filters pass low frequency signals, attenuating (reduce the amplitude of) signals with frequencies higher than the cutoff filter you choose. High-pass filters do the opposite.

- **Enabled:** Turn the filter off and on
- **Filter Type:** Choose high pass or low pass
- **Frequency:** Sets the cutoff frequency of the filter. With low pass filter, signals *above* the selected frequency will be reduced. With high pass filter, signals *below* the selected frequency will be reduced
- **Q:** Also known as resonance, Q affects the filter quality; setting a higher Q value will emphasize the frequencies around the set filter frequency.

## Distortion

Distortion is an easy way to give any synth sound a more coarse, fuzzy quality.

- **Enabled:** Turn distortion off and on
- **Threshold:** The degree to which distortion is applied to your sound. The lower the threshold, the less the original synth sound will come through the distortion.

## Mod Y

Mod Y lets you set how your finger movement on the Y-axis when playing on a pad will affect various parameters. Setting positive values means the closer to the top of the pad you move your finger, the greater the effect. Setting negative values means the closer to the top of the pad you move your finger, the lesser the effect.

- **Distortion**
  - **Threshold:** affects the amount of variation in threshold based on the Y axis of the touchpad.
- **Delay**

- Feedback: The higher the value, the more feedback tapping lower on the Y axis will generate.
- Wet: The higher the value, the more the delay will sound when tapping lower on the Y axis of the touchpad.