Five Finger Discount

Users Guide

What is the *Five Finger Discount*?

Play one note, get five for free. An audio processing device for melody makers, temporal (a/e)ffect enthusiasts, and pitch and rhythm polemics. Conceived by and directed toward the live performer, it encourages melody swaps in medias res. Put plainly, you play a note, and the device will play back five more, each transposed and delayed by amounts you set. Including your original, now you've got a six note melody. Save this melody template in a convenient

preset and make another. Now, switch between them on the fly using a midi button, pedal, or whatever else you can midi-map to each saved preset. You're at the center of a symphony; read on.

Setup

Five Finger Discount is a mono Ableton Live Audio Device implemented using [Max for Live](#) (M4L). M4L using at least Max version 6 is required to use this device. Installation is easy: after [downloading the device .amxd file](#), simply drag and drop it into an audio track in your Live set.

The device receives audio input via the left channel. Output is routed to both outputs for ease of use with subsequent devices. The device is designed to be cpu friendly; running Live 9.18 on a 2.66 GHz Intel Core i7 MacBook Pro with Max OS 10.6.8, using this device alone with the built in Core Audio driver drove Live's CPU meter to 4%.
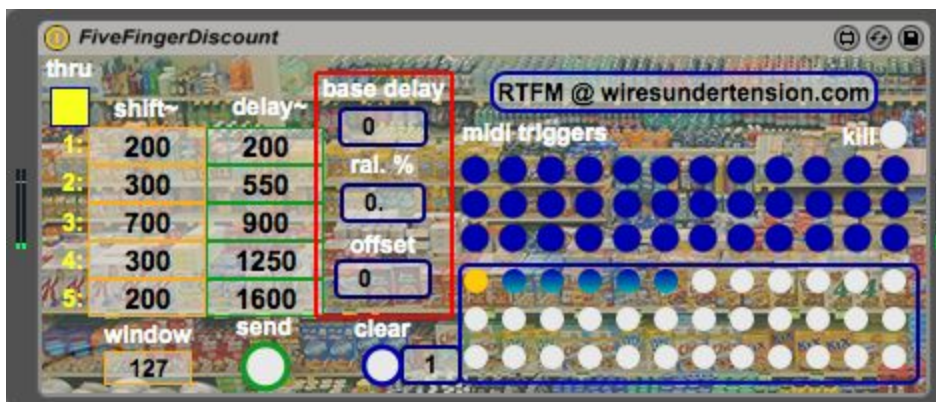
The Fingers
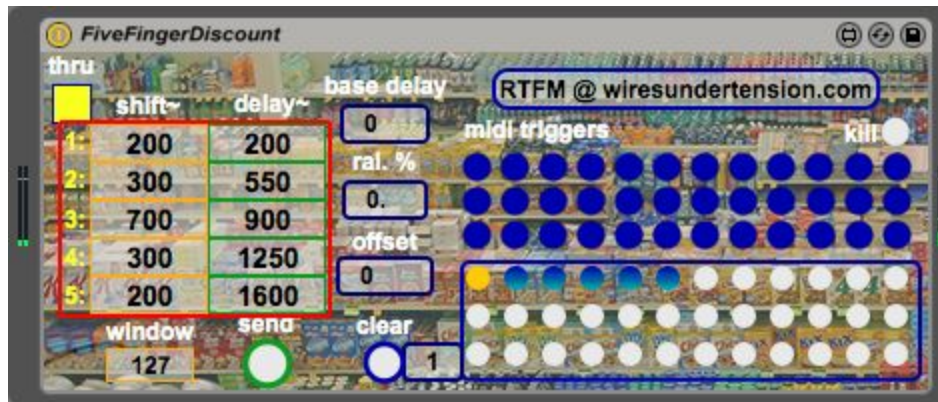
Like most acoustic instruments, each of the device's five "fingers" plays a single note but here these notes are simply transposed and delayed versions of the audio input. The settings for each finger can be found within the red highlighted area above. Within this grid, each numbered finger is a row containing a **shift~** amount (transposition) in cents and a **delay~** time in milliseconds. Enter the amount of transposition and the delay time desired for each note. **Shift~** values have a two octave range (-2400 to 2400). Each finger's maximum **delay~** time is two seconds * the finger number, e.g. finger 5 can be delayed by up to 10 seconds.

Send Delay Times
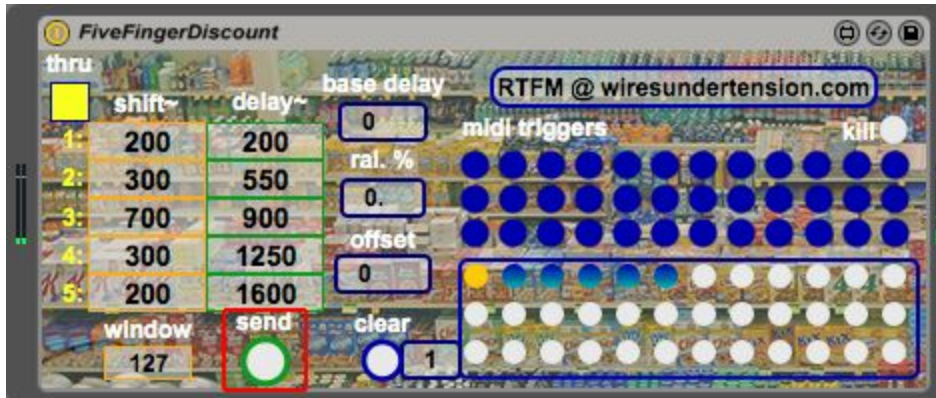
When you are done manually configuring **delay~** times, press the green **send** button for them to take effect. This let's you get all the fingers configured before sending them all at once. Play a note and see if you like the results. Remember, always press **send after changing any delay times manually or with auto-fill or the changes won't take effect.**

Delay~ Auto-Fill

Instead of manually entering **delay~** values, you can auto-fill the finger times in sequence using the three center number boxes highlighted above:

- Each finger **delay~** time will be a multiple of **base delay** (milliseconds). e.g. if **base delay** is 200 (and other auto-fill values are 0), the finger delays will populate from 1 to 5 as 200, 400, 600, 800, and 1000. This lets you quickly create melodies, allowing each finger to voice the next note in the sequence.
- **ral. %** indicates a rallentando amount. Delay times derived from **base delay** will stretch according to this value, getting farther apart as this number increases from 0.0 to 1.0, creating a slowing tempo. This unique feature of *Five Finger Discount* allows you to create gracefully receding melodic gestures that escape the locked temporal grid of most electronic music.

3

- **offset** is a number of milliseconds to subtract from all **delay~** times created using auto-fill. This is particularly useful to compensate for system audio latency. For example, if your system has a 30 millisecond audio latency and you would like the fingers to play in time with your performed note, you might set this to 30 ms so the fingers sound earlier. Adjust by ear to cheat time and lock in with your playing as needed. The value range is +/- two seconds.
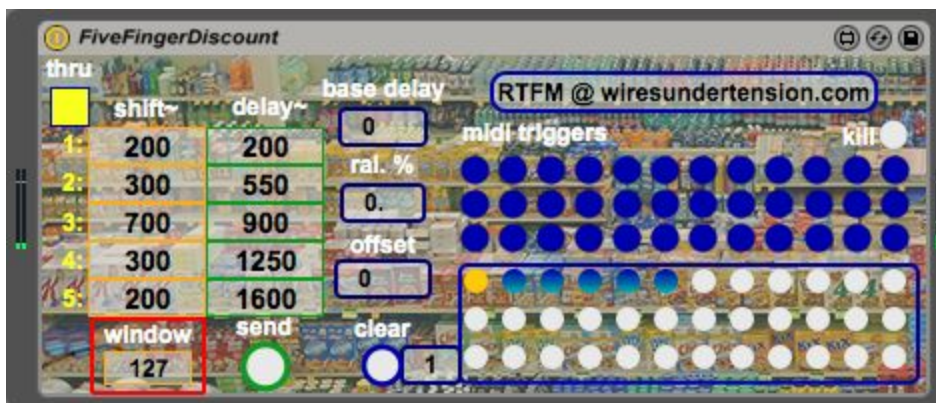
Of course, you can tweak any of these **delay~** times by hand after using the auto-fill boxes to get started. Remember to press send for **delay~** times to take effect.

Thru Toggle
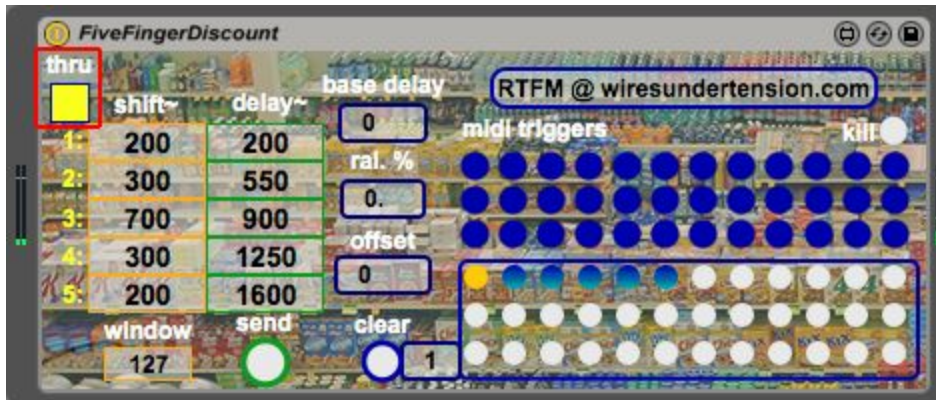
The **thru** toggle button highlighted above passes the left channel audio input directly through to the stereo outs when lit.

Shift~ Buffer Window

The **window** number box highlighted above indicates the size of the buffer used to create the overlap-add transposition effect, ranging from 120 to 400 milliseconds. Greater transpositions may require greater values for fewer artifacts. Try out different values to see what sound you like best for your input and finger settings.

Presets
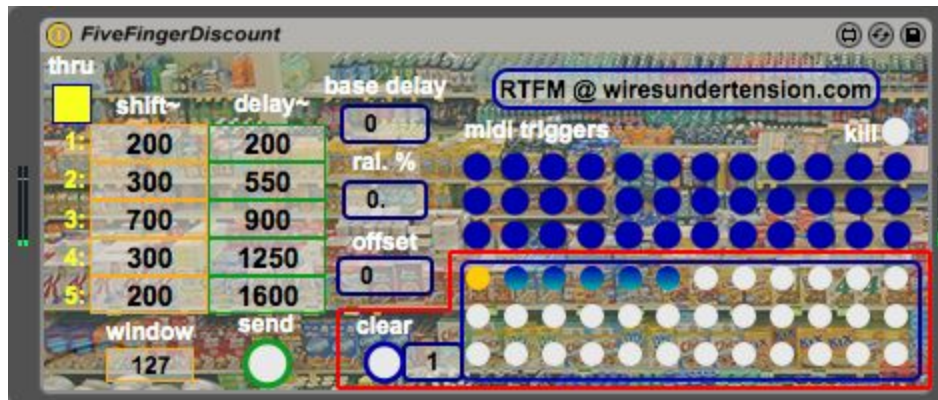
Once you've configured **shift~** and **delay~** values and **window** and **thru** settings for a particular effect, save them within the preset box highlighted above. Shift-clicking on an empty, white circle will save the current settings. Clicking a filled, blue circle will instantly recall these settings. Note that you don't have to press **send** for preset delay times to go into effect; they do so automatically. There are 36 presets in rows of 12. To clear a saved preset, type its number into the number box to the right of the **clear** button and press **clear**.
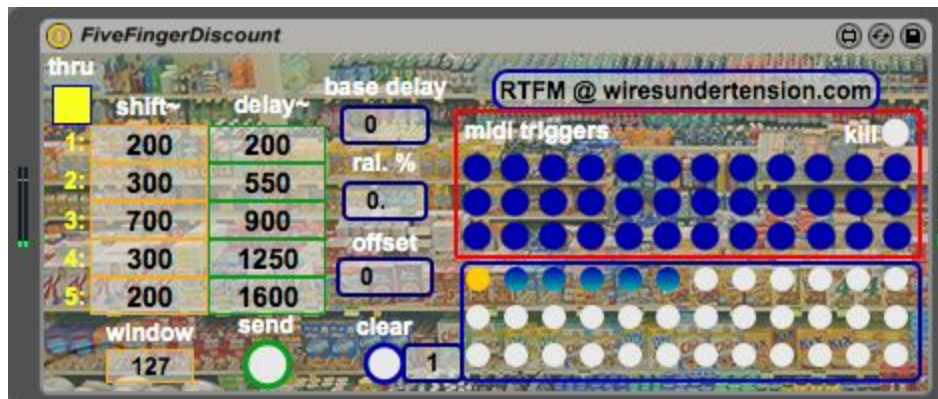
Instead of recalling presets by clicking them, map each preset to a continuous controller using the **midi trigger** buttons highlighted above. These rows of blue buttons correspond exactly to the rows in the preset box: 3 rows of 12 buttons. For example, triggering the upper left button recalls the upper left preset, and so on. Live buttons turn on when they receive a positive controller value and turn off when the receive a controller value of 0 so make sure to configure any midi pedals or buttons as momentary so they send a positive value when pressed and 0 when released. If any buttons get "stuck" in their on state from a wayward positive controller value, press the **kill** button to reset them. The **midi triggers** dramatically open up the possibilities for live performance where the mouse is best avoided.

Find this Manual
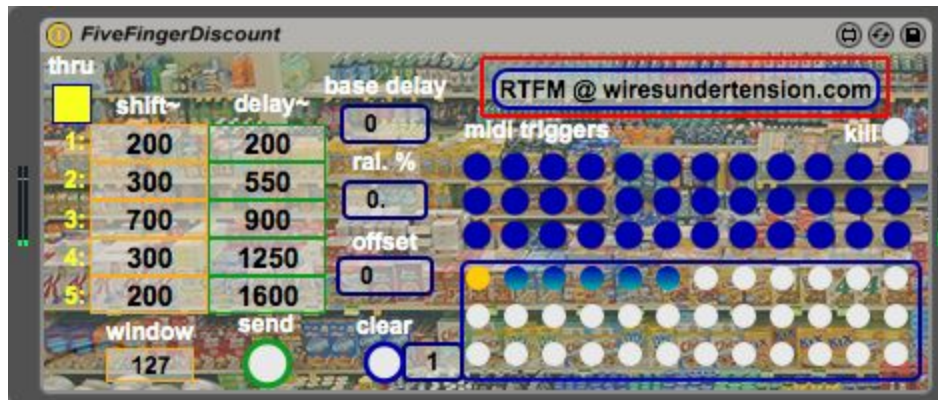
With an active internet connection, this manual can be accessed anytime by clicking the button highlighted above. A browser will open and direct you to the wiresundertension.com page for this guide.

Tips

The power of *Five Finger Discount* comes from being able to switch finger settings on the fly using the **midi triggers**. The device is designed so that you can switch to a new preset while a previous melody is still playing and start another, overlapping melody alongside it. Switching melodies on the fly allows you to compose melodic parts that evolve along with your source performance. By precomposing these melodic templates, you have a new instrument that extends the ensemble possibilities of the one you're holding in your hand.

Due to the simple, cpu-efficient method by which the transposition is implemented (overlap-add), wide shift values can affect the precision of a finger's timing. For example, a very low transposition may make that finger's audio appear slightly late. Even when using auto-fill with 0 **ral. %** to create strict pulses you may find you need to tweak delay times by ear to achieve a consistent metrical effect. Likewise, the **window** setting used to change the transposition buffer size can have an effect on timing. Again, don't be afraid to compensate by manually tweaking the **delay~** times as needed….before saving them to a preset.