

## To install the software

- a) copy the e352\_fm.w.bin file to the ROOT directory of your uSD card. The card MUST BE FAT32 formatted (use 32GB or smaller cards, speed is not important).
- b) turn off power to the E352, insert the uSD card, and while HOLDING DOWN the encoder knob, apply power.
- c) release the knob. The Bootloader should run and detect the firmware file. It will ask if you really want to do this, select YES and click. The new firmware will load.
- d) remove the uSD card when the E352 reboots.

## Bugfixes

- Corrected the Noise Mode not having uncorrelated outputs in certain settings.

## Features added

- \* HPF option for FM - a new item on the Frequency page provides four operation modes - Off (default), 0.1Hz, 1Hz and 10Hz HPF corners. This works in both Expo and Linear FM modes and eliminates the frequency offset that is observed mainly in the high sensitivity linear FM modes.
- \* Encoder Acceleration - turning the encoder quickly now causes "click acceleration" which helps move across long lists with less turning.
- \* Patches - Patches increased to 16 max and Patch page now supports name editing with a fairly simple navigation process. Context-sensitive help text is provided to explain what's going on.
- \* Morph + Phase Mode, Phase Lock 90+Z2 setting - This is a customer request which forces a 90deg phase offset between the two outputs and then uses the X parameter as a Z morph control for the 2nd channel.
- \* 2-op FM independent morphing - adds two new settings in 2-op mode that let you control the Z morph of the Modulation and Carrier waves separately. Either "Z" (default) which drives the morphing from the Z CV parameter, or fixed values from 0-99%.
- \* Another quantization option for the Morph + Detune mode. This one is called "Sub+Harm" and provides an alternative list of fixed quantization options selectable via the X parameter. The list includes the following ratios: 1/8, 1/4, 1/2, 1, 2, 3, 4, ... 15, 16
- \* A new operation mode called "Morph + Blend". This mode provides two Z-morphed outputs which can be mixed/blended/cross-faded. The X parameter is the mix control, Y controls Z morphing of the first wave, and Z controls Z morphing of the 2nd wave. Output 1 always provides the first wave and output 2 is the mix between the first and 2nd waves. An "Octave Shift" setting lets you choose up to  $\pm 3$  octaves pitch offset (quantized) to the Z2 wave for sub/super oscillator features.
- \* A new operation mode called "Morph+Chord" that provides a cloud of up to 4 oscillators tuned to a chord selected from a table of up to 64 unique chords by the X parameter. The Z parameter sets the morphing of Output 1. There are several modes available for the Y parameter:
  - "Z1" allows separate Z morphing on the two outputs
  - "Spread" provides variable spreading of the chord offsets

- "Chord 2" provides separate chord selection for the two outputs
- "GridXY" provides 8x8 indexing into the chord table.

Four chord tables are available in ROM

- "3-note" contains 64 chords of 3 notes spanning an octave
- "4-note" contains 60 chords of 4 notes spanning about 3/4 octave
- "Harmonic" contains 64 chords of 4 notes using a Just Intonation scheme.
- "Stradella" contains 64 chords of 3 notes based on the Stradella accordion button layout.

\* New visualizer for Morph that maps XY and Z onto the same grid. Note that Z can "run off the edge" due to the fact that it does morphing between linear-adjacent waves which doesn't exist in the XY mode.

**\* This update required changes to the EEPROM memory so your patches and wave table names will be erased. The wavetables will still be accessible but will revert to default names.**