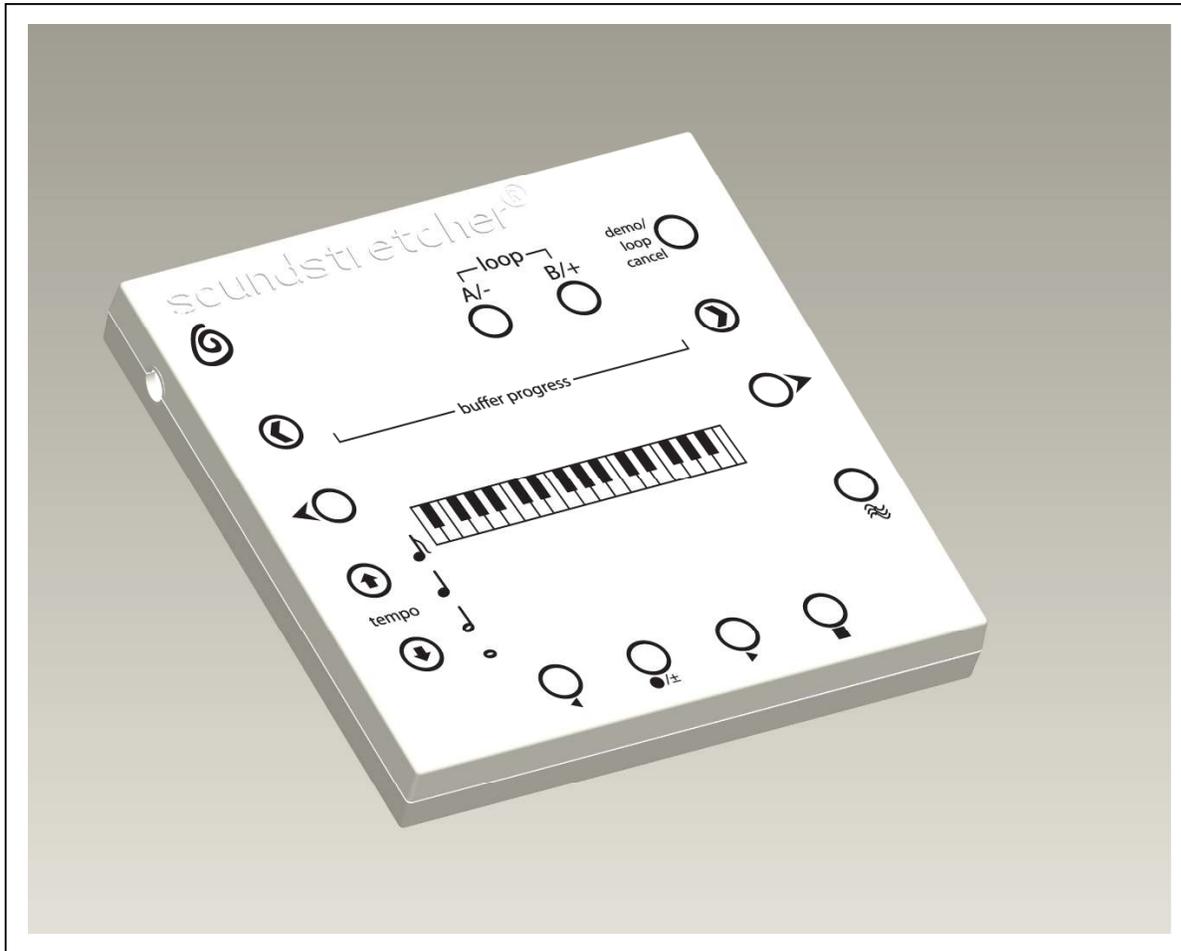# soundstretcher®

soundstretcher®

soundstretcher® is a portable music sampler designed specifically to be used as a transcription and general aural training aid for both amateur and professional musicians.   Using *soundstretcher*^{TM}*,* a musician can analyse a complex passage of music, for example a fast jazz saxophone solo, or a rock guitar riff, and confidently identify individual notes as they are being played.   The musician may then attempt to directly reproduce the passage on his or her instrument, or may want to write the music down on manuscript paper.   The product is targeted principally at student and professional jazz musicians, but any musician who strives to include an element of improvisation in his or her music could benefit from it.

soundstretcher® accepts audio signals from sources such as a CD player, MP3 player, or a microphone/pick-up.   Intuitive controls, modelled on those of a traditional tape recorder, allow the user to digitally record up to about 5 minutes of the applied signal.   The recorded sound can then

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soundstretcher®

be played back through a "line" level output, for subsequent amplification, or a "phones" output, capable of directly driving headphones or passive personal stereo speakers.   During playback, *soundstretcher*® offers a number of facilities that enable the user to discern greater levels of detail in the reproduced sound than would normally be possible.

The principle analysis feature provided is tempo modification.   This allows the user to *interactively* adjust the tempo between the original and an eighth of the original tempo.   This is achieved *without* modification to the original pitch through the application of a sophisticated DSP (Digital Signal Processing) algorithm.

In addition to modification of the sound produced, the unit assists analysis further by providing a visual representation of the music in the form of a spectrum analyser, or "pitch analyser" display. The display is composed of a dot matrix of LEDs which is scaled such that adjacent columns of dots represent a pitch interval of a single semitone.   A representation of a piano keyboard running beneath the display allows the user to visually identify individual notes as they are being played.

Further features provided include extensive "looping" control, which allows a short passage of music to be repeated, and non-volatile storage, providing indefinite retention of a recorded sample.

Key features:

- Audio connections - input: mini-jack line in, mini-jack mic/pick-up; output: mini-jack line out, mini-jack phones.
- Record gain and output volume rotary pots.
- Sample capacity: primary 5 minute re-recordable buffer, and also a 20" non-erasable buffer intended to be used to hold a factory loaded, golden reference "demo" sample.   The primary buffer is also non-volatile (remains after power is switched off).
- Play control: x1, 1/2, 1/4 & 1/8 tempo, forward or reverse.   Maintains original pitch through the implementation of a sophisticated frequency domain algorithm.
- Display: 35x5 dot matrix, displaying just under 3 octaves of pitch in semitone intervals, slide-able over an 8-octave range.
- Loop controls: loop start/end definition, loop expand contract, loop shift left/right.
- Band Pass Filter: when operational, filters off all sound of pitch which is either below or above the currently selected pitch window. This feature is particularly useful for isolating bass lines.
- User interface: 14 touch sensitive "buttons", plus one conventional button recessed into one side of the unit. This is used to erase the user buffer.   21 discrete LEDs in addition to the dot matrix display.   The LEDs and dot matrix display "glow through" a stylish custom designed translucent white plastic enclosure.

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