

The **Phonogene** is a digital re-visioning and elaboration of the tape recorder as musical instrument. It takes its name from a little known, one of a kind instrument, used by composer Pierre Schaeffer. While not an emulation, it expands upon the original concepts. It is informed by the worlds of Musique Concrète (where speed and direction variation were combined with creative tape splicing to pioneer new sounds) and Microsound (where computers allow for sound to be divided into pieces smaller than 1/10 of a second, and manipulated like sub-atomic particles). Having CV control over every parameter, it is most dynamic as a digital audio buffer for the modular synthesist. The Phonogene is comprised of a pair of tool-sets: Tape Music tools allow for sounds to be recorded on the fly, layered, manually cut into pieces, re-organized, and played backward or forward at differing speeds. The Microsound Tools allow for you to divide the audio buffer into progressively smaller pieces called Genes (aka particles, grains, granules). You can then step through those pieces in chronological order, and/or in nonlinear fashion (providing random access of the audio buffer). Both sets of tools complement each other, which is why they were grouped into one module.

SIGNAL IN & ATTENUATOR: Audio input. Line level or modular synth levels are acceptable. AC Coupled. The associated **Signal In Attenuator** sets the input level. For line level, set at 70% CW (2Vpp), and for mod synth levels, set at 30% CW (10Vpp); noted on the faceplate.

SOUND ON SOUND CV IN: Sets the mix of previously recorded loop with live Signal input when recording, to allow for SOS-type "overdubs." Also allows for setting monitoring level of live input signals with previously recorded loop. Can also be used as a CV cross-fader (between live & loop) or VCA for loop (no live signal). Range: 0V to 10V, linear response. Normalized to +10V.

SOUND ON SOUND ATTENUATOR: With nothing patched to SOS CV In, this works as a standard panel control. With signal patched to SOS CV In, this works as an attenuator for that signal.

SIGNAL OUT: Audio signal output. 10Vpp, depending on Signal In Attenuator setting and the source material. AC coupled.

VARISPEED ROTARY & LEDS: Manual bipolar speed and direction control. When set to 50% playback is stopped, turning CCW from 50% decreases playback speed in backward direction, turning CW from 50% increases playback speed in forward direction. Two LEDs are associated with this rotary. The 2 associated LEDs show in which direction the Phonogene is playing. The left (blue) LED indicates reverse playback. The right (orange) LED indicates forward playback. When no LEDs are lit, playback is stopped. LEDs also flash when a new splice is found (see the **Organize** controls).

VARISPEED CV IN & ATTENUATOR: Bipolar speed and direction control where 0V stops playback, positive control signal increases playback speed in forward direction, negative control signal increases playback speed in reverse direction. Range +/-4V. The associated **Varispeed Attenuator** sets the bipolar level for the incoming CV.

ORGANIZE CV IN & ATTENUATOR: Unipolar CV input which selects the next Splice to be played. The currently selected Splice will play to the end before the next Splice is selected. The Varispeed LEDs flash whenever this control finds a new Splice. Range: 0V to +5V. The associated **Organize Attenuator** sets the level for the incoming CV. It is unipolar.

ORGANIZE Rotary: Manual Unipolar control which selects the next Splice to be played. The Varispeed LEDs will flash whenever this control finds a new Splice.

PLAY & RECORD CV INS: **Play CV In:** At each rising edge signal applied to Play CV In, playback is triggered. At the end of loop or splice, Phonogene looks at the incoming CV, and if high, it plays again. If low, it does not play. This Input is normalized high. With nothing patched, play is continuous. Needs at least 1.5V trigger signal to operate. **Record CV In:** Toggles Record on/off. When recording from a cleared buffer, the first record cycle sets the record length, so be sure to perform the **Erase Routine** to achieve a new recording. Sees only rising edge of signal. Needs at least 1.5V trigger signal to operate.



SLIDE ROTARY: Manual bipolar rotary for scanning the pieces of sound that result from setting Gene-Size to greater than 10%. Moves/slides through the Genes (aka grains). Allows for scrubbing of the recorded material, and is always dependent upon the Gene-size setting.

SLIDE CV IN & ATTENUATOR: Bipolar CV input for Slide. Range +/-4V. The associated **Slide Attenuator** sets the bipolar level for the incoming CV.

GENE-SIZE CV IN & ATTENUATOR: Unipolar CV input setting size divisor of audio buffer, dividing with respect to the buffer size as set by Record or Splice length. This parameter "auto-splices" the recorded material like a machine. Operates with great precision and can cut pieces to a granular level. Nondestructive. At 0V there is no effect. Range 0V to +8V. The associated **Gene-size Attenuator** sets the level for the incoming CV. It is unipolar.

GENE SHIFT CV IN: A clock signal at this input advances Phonogene to the next Gene, in chronological order. Always dependent upon the Gene-size setting. Needs at least 1.5V trigger signal to operate.

GENE-SIZE ROTARY: Manual unipolar control which sets Gene-Size divisor.

SPLICE CV IN: Input for using external signal to splice the loop. Sees only rising edge of the signal. Needs at least 1.5V trigger signal to operate.

EOS CV OUT & LED: Outputs a short 4 ms pulse at the end of each Splice. With no Splices, EOS outputs a pulse at the end of each loop. The associated **EOS LED** flashes at each pulse output.

RECORD BUTTON & LED: Manual, momentary button to toggle record on/off. The Record LED indicates when recording is taking place. When not lit, recording is not taking place.

SPLICE BUTTON: Pressing drops splice marker on a loop. When loop is Organized, the splices (resulting audio segments) are re-arranged according to the Organize CV. Phonogene plays whichever splice is selected by Organize parameter.

Recording Time and Quality: The Phonogene audio buffer is 2MB, nonvolatile, high number of fast read and write cycles. Nonvolatile means the Phonogene remembers both samples and splices on power down. The high number of read and write cycles is key to longevity of the module. High speed read and write cycles allow for short sample times, making microsound possible. Because the record and playback frequency is continuously variable from 88.2khz to 5.5khz by the Varispeed controls, the longest possible recording or loop length is determined by the speed of the playback/recording. Therefore, long recordings may be achieved, but at the cost of a lower sample rate, meaning the resulting recordings will be of lower sound quality. A "Mid-Fi" setting may be achieved by setting the Varispeed rotary at around 50%, so that both Varispeed LEDs are off. This records a good quality, 2-second sample length, and allows for a good range of speed variation. Playback is stopped while you record. To record shorter samples at higher quality, set the Varispeed rotary CCW. To record longer samples at lower quality, set the Varispeed rotary CV. Sample length can range from approximately >0 to 30 seconds.

Erase Routine: Hold the Splice button for 3 seconds to erase all splices at once. The Rec LED flashes to indicate splices have been erased. If you then press the REC button while still holding the Splice button down, the Recording is also erased. Note: Erasing splices is non-destructive to your audio.

Broken Echo Mode: This hidden function allows for realtime processing of audio signals. To enter Broken Echo mode, create a sample/loop/Splice (just press the Rec button and record entire memory bland, for example). Then press and hold the Rec button until you pass through the EOS (EOS flashes) and Rec will be stuck On. To exit Broken Echo mode, press the Rec button again (do not Hold it though, or you will go back into Broken Echo mode). In this mode the Phonogene is similar to the Echoplex, with the SOS switch activated. This is similar to covering the Erase head of a tape recorder, allowing a spool of tape to be recorded over and over and over again, without erasing the previous recordings. This is a great mode for building walls of sound, drones, or making crude echo FX. Phonogene still minds Splices, Varispeed, Gene-size, Gene Shift, and Slide. Any modulation of these parameters are recorded. Be sure to set the SOS Attenuator control according to your desired results. For example, live input processing requires the attenuator to be set at around 50%, while massaging captured content requires a setting of 100% Wet. Adding or removing splices during Broken Echo Mode is not supported.