Model 269e Graphic Waveform Generator

firmware version 1.0.1

The 269e is a four voice oscillator with a novel approach to waveshaping. The basic idea and functionality of the module migrated from the Model 268e, but with some updates and twists. Each oscillator can operate with shared or independent settings. This manual will describe the shared functionality of the oscillators and then how the channels can operate independently.

The 269e has four sections - input, output, an editing section, and a main section to control common variables. The input and output sections are obvious and require no elaboration.

The 269e also adds an enlarged screen that allows almost all functions to be brought to the front of the panel to limit “menu diving”. All four channels are depicted in an observable window which graphically represents the waveshape as well as any kind of external process recorded into the virtual logger. The screen also displays the type and amount of modulation selected, as well as the pitch frequency for each channel. Finally, the screen also displays the attenuverted amount for both the frequency cv and the modulation cv (when relevant in random mode).

As with the 268e, the interface allows the user the ability to draw unique and variable waveforms. Each oscillator emulates a virtual logger tape on which to draw waveshapes. The main user interface consists of common variables and per-channel edit facilities.

Common Variables

Within the ***COMMON VARIABLES*** section, the ***refill rate*** knob and its attenuverter controls the tape speed of the virtual logger. The cv controllable ***skew*** knob can globally transform any shape into a saw-like waveform. Or if the ***inset*** button is activated, the ***skew*** knob can be used to manually draw the waveshape. In this setting, the virtual tape moves when motion is detected.

The grey input in the ***COMMON VARIABLES*** section draws the waveforms for all the oscillators concurrently. This input is then linked with two outputs. The purple banana output labeled ***df*** produces a differential function - faster cv value creates a higher voltage output. The red banana outputs a pulse any time the cv direction changes. Both functions may be useful for generating timing and rhythmic events.

Per-Channel Editing

Per-channel editing begins by selecting a specific oscillator with the ***yellow*** buttons at the bottom of the panel. The grey banana jack in the ***CONTROL & MODULATION INPUTS*** section can be used to draw waveshapes on a per channel basis, replacing the functionality of the grey banana in the ***COMMON VARIABLES*** section. Once a channel is selected, a single press on the ***type/source*** encoder determines whether cv is controlled globally or with the isolated input for that channel. The grey input in the ***COMMON VARIABLES*** section will continue to draw the waveforms for the remaining oscillators concurrently.

Holding the ***type/source*** encoder switches the waveform to fixed sine waves. Once in this setting, a single press changes the frequency to ***x1*** or ***x2***.

The ***frequency*** encoder changes the base pitch in wholetones. Pressing and turning the encoder changes the pitch by octaves. Holding the ***yellow*** button and turning the ***frequency*** encoder allows the frequency to be fine tuned.

Turning the ***type/source*** encoder selects the modulation type for the channel. Modulation types consist of the following:
A.M. - amplitude modulation
F.M. - frequency modulation
B.M. - band modulation (analogue filter modulation)
ADZ - sync with definable threshold
RND - random waveform generator

The parameters of a single channel can be copied to other channels. Hold the ***yellow*** button of the channel you wish to copy and press the ***yellow*** button of the channel you wish to copy to.

Preset Management

Holding the ***frequency*** encoder connects or disconnects the module from the store/recall functionality of the Buchla 200e preset management system. If no preset manager is present in the system, holding the ***frequency*** knob stores the current settings which will be recalled automatically upon next startup.

System Menu

Pressing both attenuverter encoders simultaneously brings the system menu to the display. Here the user will find:

Mod in gain - A setting to amplify the mod inputs to fit the adc range if wanted. ***2.5*** is the default setting.
Inset mode - A setting that determines the drawing behavior with two different modes: timer or toggle. Timer gives the user a couple seconds to start drawing, and if no motion occurs, the inset reverts to normal skew functions. Toggle makes the button a simple on/off switch.
Skew for indi - Determines whether the skew affects a channel when it is being controlled independently. When off, skew only affects the channels that are running with common variables. When on, skew effects all channels globally even if operating independently.

The system menu also indicates the current firmware, as well as screensaver and brightness settings.