EMULATOR ANALOG VOLTAGE INTERFACE

The Emulator Analog Interface enables you to control your Emulator by use of conventional analog synthesizer control voltage and gate signals. The interface consists of hardware analog interface computer and special interface software for the Emulator.

WARNING !!!
The Emulator Analog Interface software requires that the Emulator be equipped with the RS232 option. Running the Analog Interface software on an instrument not so equipped may cause disk errors and loss of data on diskettes.

Overview

To use the Analog Interface, start with both your Emulator and the Interface turned off. Connect the two machines using the supplied RS232 cable connector. Turn on the Emulator and execute the power-on procedure using the analog interface software. When the Emulator has finished loading, turn on the Analog Interface. Connect your external control voltages and gates to the CV and Gate inputs on the Analog Interface.

The Analog Interface has eight identical channels, each consisting of a control voltage input, a gate input, and a three-position function switch. When the function switch is in the EXT. position, the corresponding channel is available for external control through the interface. Whenever a rising edge appears at the gate input, the control voltage at the CV input is analyzed. A code is sent to the Emulator from that channel indicating that the key equivalent to that control voltage should be played. Whenever a falling edge occurs on an active channel, a code is sent to the Emulator indicating that the key activated by that channel should be released.

When the function switch for a channel is in the INT. position, the interface channel is disabled and will send no codes to the Emulator. When the switch is moved to the TEST position the channel is tested. A code will be sent to the Emulator from that channel corresponding to the key indicated by the control voltage currently at that channel's CV input. (If no control voltage is present, zero volts is assumed.) When the switch is returned to the INT. position, the release code for that channel is sent.

The Emulator Analog Interface Software enables the Emulator to interpret the codes sent by the interface hardware. The software behaves as though the Analog Interface is the Emulator sequencer. The Emulator's internal sequencer will not function with the Analog Interface software.

Mono Mode

The Analog Interface normally requires a gate every time that there is a change in control voltage. This can cause problems when the interface is used with certain monophonic controllers such as single trigger mono keyboards, Lyricon wind controllers, and some guitar synthesizer controllers. Since these controllers can change CVs without generating a gate, the Analog Interface will ignore these CV changes. To overcome this problem we have implemented a special mono mode. To enter mono mode, press the SEQ #1 button in the Emulator's sequencer section. In this mode, interface channel #1 is constantly monitored for CV changes and will respond to any change regardless of the state of the gate input. Interface channels two through eight are not active in mono mode. To return to normal polyphonic mode, press the STOP button in the Emulator's sequencer section.

The SEQ #2 button in the Emulator's sequencer section is reserved for activating any new mode that might be added in the future. With current interface software, pressing this button causes the interface to stop sending codes to the Emulator. Pressing the STOP will return the interface to normal mode.

Gate Test LED

To indicate that the Emulator is receiving codes from the Analog Interface, the LED on the Emulator's GET SEQ button will blink whenever the Emulator gets a key depression or key release code from the interface. This is useful during initial setup, but can be rather annoying during use. To disable the blinking, press the GET SEQ button. Pressing the button again will re-enable the test mode.

Scan Rate Control

A special function is used to control the response speed of the Emulator to the Interface. When a gate goes high on the interface, it takes approximately 1 msec for the interface to send the appropriate code. The Emulator takes approximately 2 msec to start a sound and 1 msec to end it. In addition the Emulator executes a synchronous scan loop. Normally this scan loop takes 10 msec, and is asynchronous with the Analog Interface data. Hence the total response time for the Emulator from the time a gate goes high on the interface to the beginning of the sound varies from 3 to 13 msec.

Pressing special function code B2 on the Emulator disables the synchronous scan loop, reducing the time spent in the loop to about 1 msec. This allows the Emulator to respond more quickly to the Analog Interface. The total response time after B2 has been pressed will be 3 to 4 msec. However, the lack of a scan loop means that the keyboard may respond to contact bounce with double triggering. If the keyboard is to be used at the same time as the Analog Interface, the scan loop should be left at 10 msec. Pressing B2 when the loop has been disabled will re-enable it to 10 msec.

