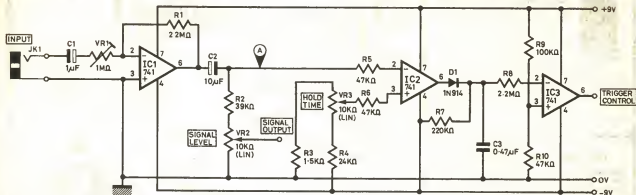


EXTERNAL INPUT UNIT FOR SYNTHESISERS



THE unit shown will allow external inputs such as guitars, microphones etc. to be processed by the circuits within the synthesiser.

IC1 is an amplifier and VR1 should be adjusted to give 2V r.m.s. at A with the output of the input source at maximum amplitude. This will give about 400mV r.m.s. at the "signal output" which is adequate enough for most synthesisers.

IC1 also feeds a comparator IC2 whose reference level is variable and thus the length of time between the first and last positive pulses that will appear at the output is variable due to the nature of sound envelopes.

IC2 feeds another comparator IC3. The components D1, R7 and C3 make sure IC3 receives constant positive input level when a signal is inputted into the circuit. The time constant of R7 and C3 is about 100ms which is more than adequate to cope with the negative half of each cycle of

the input frequency but is not too large as to impair performance if two notes are played very quickly one after another.

Thus with no input signal the output of IC3 will be sitting at positive saturation but when an input signal is applied the output of IC3 will go to negative saturation for a length of time determined by the duration of the input signal and the setting of VR3 and will then go back into positive saturation.

If a synthesiser system is being used where a positive going trigger voltage is required for the envelope shapers the following changes should be made: R4 and R7 to +9V instead of -9V. R9 to -9V instead of +9V and D1 should be reversed. If the trigger output is to go from 0V to -8V or from 0V to +8V then diodes can be put on the output as required.

With a normal electric guitar envelope VR3 can adjust the trigger pulse length from about 10ms to about 3s.

Many interesting effects can be obtained using an electric guitar with the unit from envelope reshaping to triggered "Wah" and triggered "Phase" if the synthesiser has a voltage controlled phaser. Also white noise can be triggered and mixed to create strange rushing sounds with each note played.

The unit should work well with both the *P.E. Sound Synthesiser* and the *Minisonic I and II*.

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