



Clap-on/clap-off switch

This addition to the Voice Activated Relay (VOX) circuit published in the July 2011 issue of *SILICON CHIP* changes it to operate as a “clap switch”. Clap your hands and the relay turns on; clap again and the relay goes off.

The original VOX design switches the relay on for a set period after a certain signal threshold from the microphone is exceeded. This modification changes the relay to remain switched on until a second signal is detected from the microphone, at which time the relay is switched off.

The delay period of the VOX can then be used to control how quickly the relay is switched on and off with each signal.

The modification involves adding a flipflop between the Schmitt Trigger output (pin 7 of IC1b) and the drive to the transistor that powers the relay. This is a standard CMOS 4013B dual D flipflop with its data input connected to the Q1-bar output. This causes the Q1 output to transition from a high level to a low level upon receipt of the first clock pulse from the Schmitt trigger. Another high-going signal from the Schmitt trigger causes the Q1 output to switch low again.

The Q1-bar output is the inverse of the Q1 output, being high when the Q1 output is low and low when the Q1 output is high.

The reset and set inputs of the 4013B are tied low. The clock, data, reset and set inputs of the second D flipflop in the package are also tied low since this half of the IC is unused.

With this version of the circuit, it is recommended to set the VOX sensitivity so that it only responds to very loud noises close to the electret microphone (such as from a hand clap) to prevent nuisance triggering.

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