



PROGRAMMABLE PULSE GENERATOR

THIS circuit describes a device which creates a series of audible signals each of which is about 0.25 second long with a gap of about the same length between each. It was originally designed to identify a number of remote sensors. Each remote would contain one of these circuits and be connected to a small radio transmitter. When triggered it would emit a specific number of 'beeps' and then reset itself to await the next trigger. The idea being that each remote sensor would transmit a different number of 'beeps' and so the master on receiving the signals would be able to identify which remote was triggered.

Pins 8-13 of IC2 are wired up to create a latch, when a trigger pulse is detected at pin 13 (B), a trigger pulse being logic 0, pins 10 and 11 go high and via TR4 an oscillator IC3, operating at approximately 4Hz, is switched on providing a clock pulse for IC1. Pins 1-11 of IC1 provide

outputs which are normally low and go high when the corresponding number of pulses is provided at the clock input, e.g., when five pulses are sent to the clock input, output 5 (pin 5) will go high. When a clock pulse is provided by IC3 and sent to the clock input of IC1 it is also sent through an inverter, produced by pins 4, 5 and 6 on IC2. The output of the inverter (pin 6) is used to switch on and off an audio oscillator via TR3. The audio oscillator is produced by TR1 and TR2, and is a simple multivibrator. An output can be taken from both sides of R6 and can drive a small high impedance crystal transducer. This output is the final output and it is here that I connected the transmitter mentioned earlier. Every time the clock oscillator goes low a 'beep' will be heard in the transducer. The programmable part is achieved by creating a direct link from one of the numbered outputs to the reset pin

(pin 15) on IC1 thus when a wire is connected as shown by the dotted line eight 'beeps' will be heard and then the circuit will reset itself. As the latch requires a low reset the pulse is first sent through an inverter produced by pins 1, 2 and 3 of IC2.

Other uses for this circuit could include an automatic telephone dialler or a simple remote control system. The number of 'beeps' can be increased by an indefinite degree by connecting another 4017 counter into the circuit. To do this simply disconnect pin 12 on the existing counter, from the resistor R1 and take it to the clock input (pin 14) on the next counter, all other pins should be connected as they are on the first counter; the output pins on counter two can then be checked to see how many pulses they produce.

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