

How Noise Toy Works

Sounds are triggered using the two touch points on the board marked T1 and T2 (with cross and circle symbols under the solder resist). Touching a pad briefly plays a sound once, touching it for about a second loops and repeats a sound until the pad is touched again.

The sounds associated with the touch pads are samples (*Barbie, Speak and Spell*, farmyard animals etc.) and nursery rhyme tunes (*Pop Goes the Weasel* for example). The mode (see below) determines which sound is played when a pad is touched. A total of 10 samples and 5 tunes are available.

The shaped pads on the left side of the board marked A1 to A4 are analogue inputs (the sine wave trace on the board is a clue to this). The shaped pads on the right side of the board marked D1 to D10 are digital inputs and outputs (again the square wave trace is a clue to this).

The sine wave and square wave traces are grounds. The analogue inputs have pull-up resistors so connecting an analogue pad to ground enables its function.

A1 is a sample/tune playback speed input. Depending on the input voltage on this pad a sample will play faster than normal, slower or in reverse. Tunes will play faster or slower but not in reverse.

A2 is a sample/tune volume input. Sounds can be gated on and off with this input.

A3 is a sample/tune length input. A fraction of the complete sample/tune can be played depending on the voltage on this pad.

A4 triggers some effects applied to the sound output, reverb or bitcrusher depending on the mode.

Noise Toy has 8 different modes. The mode is determined by the voltage levels on pads D6 to D8. These have pull-up resistors so connecting a pad to ground (the square wave trace) changes the mode. Different samples and tunes are linked to the different modes.

Additionally, pulses on pad D5 increment the mode. Connecting this pad momentarily to ground steps to the next mode.

D1 to D4 are low-frequency square wave outputs (50% duty cycles) with the period depending on the current mode. The four LEDs echo the active times of these digital output signals.

D9 and D10 are high-frequency PWM outputs. These effectively function as analogue voltages when applied to the input pads A1 to A4. Some of the modes control the PWM frequency with sawtooth and triangle envelopes so when connected to the analogue inputs can give time-varying distortions.

You can connect wires directly between pads (from an LFO output on D1 - D4 to a mode input D5 - D8 for example) or you can connect variable resistors (for example between the speed input A1 and ground). The more complicated the connections between pads the more convoluted the sounds produced.

You can solder small wire loops to the pads and use crocodile leads to make connections between them, or you can permanently solder variable resistors and switches in place. It is recommended to use 47k variable resistors.

You can also experiment touching the pads with (damp) fingers.