

The 555 Monostable: One Press, One Timed Pulse

Mokxi · one-page lesson plan

OBJECTIVE

Wire a 555 as a one-shot timer, press the button on a live circuit and time the pulse: $t = 1.1 \times R \times C$, which is 1.1 s for 100 k and 10 μF .

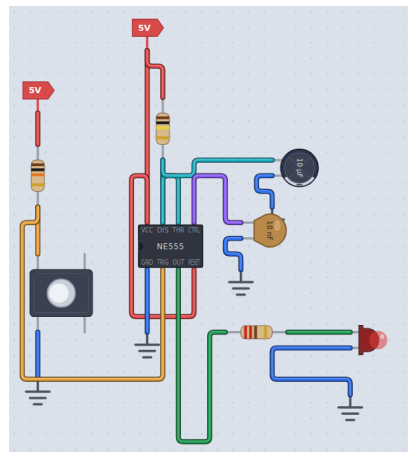
WHAT YOU NEED

NE555 timer, Power supply (2), Resistor (3), Capacitor (2), Ground (5), Pushbutton, LED

STEPS

- How the chip times it — Inside the 555 are two comparators and a flip-flop, and a string of three equal resistors that sets two refer...
- Some worked values — Keep the capacitor at 10 μF and change the resistor: 10 k gives 110 ms, about a blink; 470 k gives 5.2 s; 1 M...
- Why the length of the press does not matter — The trigger is an edge, not a level: once the output is high, further trips below a third of the supply do no...
- Common mistakes — Leaving TRIG without a pull-up, so it floats and the chip fires on its own.

THE CIRCUIT



ASSESSMENT IDEA

Have the student choose R and C for a 0.5 second pulse with $t = 1.1 R C$, build it, time the pulse on the scope and explain any difference from the prediction.

<https://mokxi.com/learn/555-monostable>