

# Buzzer

Actuators / Audio feedback

Choose the right signal for active buzzers and passive sounders.

## 01 Identify the type

### Active

Contains an oscillator. Rated DC power produces a fixed tone.

### Passive

Needs an alternating signal; frequency controls pitch.

### Polarity

Observe +/- markings where present; module pin order varies.

## 02 Drive safely

### Small piezo

May be GPIO-driven if its current and voltage requirements fit the MCU limits.

### Higher current

Use a transistor/MOSFET driver and external rated supply with common ground.

### Magnetic type

An inductive sounder may require flyback protection; follow its datasheet.

## 03 Arduino example

### Tone

`tone(8, 2000, 150);` produces a 2 kHz tone for 150 ms on a passive sounder.

### Stop

`noTone(8);`

### Active module

Switch its enable or supply driver. Check whether the input is active-low.

## Before you power on

Do not assume a bare buzzer can be powered by a GPIO; check its current draw first.

## Datasheets & further reading

### Arduino tone reference

<https://docs.arduino.cc/language-reference/en/functions/advanced-io/tone/>