



ADVANCED I/O FUNCTIONS

analogReference() Function

Configures the reference voltage used to analog input - options:

- DEFAULT - The default analog reference of 5 Volts, or 3.3 Volts
- INTERNAL - A built-in reference, equal to 1.1 volts on the ATmega168 or ATmega328 and 2.56 volts on the ATmega8
- INTERNAL 1V1 - A built-in 1.1V reference
- INTERNAL 2V56 - A built-in 2.56V reference
- EXTERNAL - The voltage applied to the AREF pin (0 to 5V only) is used as the reference

SYNTAX

`analogReference(type);`

— **type**: can use any type of the above.

Do not use anything less than 0V or more than 5V for external reference voltage on the AREF pin. If you are using an external reference on the AREF pin, you must set the analog reference to EXTERNAL before calling the `analogRead()` function. Otherwise, you will short the analog reference voltage and the AREF pin, possibly damaging the microcontroller on your Arduino board.



Alternatively, you can connect the external reference voltage to the AREF pin through a 5K resistor, allowing you to switch between external and internal reference voltages.

EXAMPLE

```
int analogPin = 3; // potentiometer wiper (middle terminal) connected to analog pin 3
int val = 0; // variable to store the read value

void setup() {
  Serial.begin(9600); // setup serial
  analogReference(EXTERNAL); // the voltage applied to the AREF pin (0 to 5V only)
  // is used as the reference.
}

void loop() {
  val = analogRead(analogPin); // read the input pin
  Serial.println(val); // debug value
}
```