

analogRead()

Description

Reads the value from the specified analog pin. The Arduino board contains a 6 channel (8 channels on the Mini and Nano, 16 on the Mega), 10-bit analog to digital converter. This means that it will map input voltages between 0 and 5 volts into integer values between 0 and 1023. This yields a resolution between readings of: 5 volts / 1024 units or, .0049 volts (4.9 mV) per unit. The input range and resolution can be changed using [analogReference\(\)](#).

It takes about 100 microseconds (0.0001 s) to read an analog input, so the maximum reading rate is about 10,000 times a second.

Syntax

```
analogRead(pin)
```

Parameters

pin: the number of the analog input pin to read from (0 to 5 on most boards, 0 to 7 on the Mini and Nano, 0 to 15 on the Mega)

Returns

int (0 to 1023)

Note

If the analog input pin is not connected to anything, the value returned by `analogRead()` will fluctuate based on a number of factors (e.g. the values of the other analog inputs, how close your hand is to the board, etc.).

Example

```
int analogPin = 3;    // potentiometer wiper (middle terminal) connected to
                    // outside leads to ground and +5V
                    // analog pin 3

int val = 0;         // variable to store the value read

void setup()
{
  Serial.begin(9600);    // setup serial
}

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

