PFC 2023-2024

Les signaux MLI (PWM)

analogWrite()

L'instruction **analogWrite()** d'Arduino génère des signaux PWM (Pulse Width Modulation) avec une fréquence de **490 Hz** pour la plupart des broches sur les cartes Arduino Uno, Mega et autres basées sur l'ATmega328P et l'ATmega2560. Cependant, cette fréquence peut varier légèrement selon le modèle de carte Arduino utilisé.

Syntax

```
analogWrite(pin, value)
```

Parameters

`pin`: the Arduino pin to write to. Allowed data types: `int`.
`value`: the duty cycle: between 0 (always off) and 255 (always on). Allowed data types: `int`.

Returns

Nothing

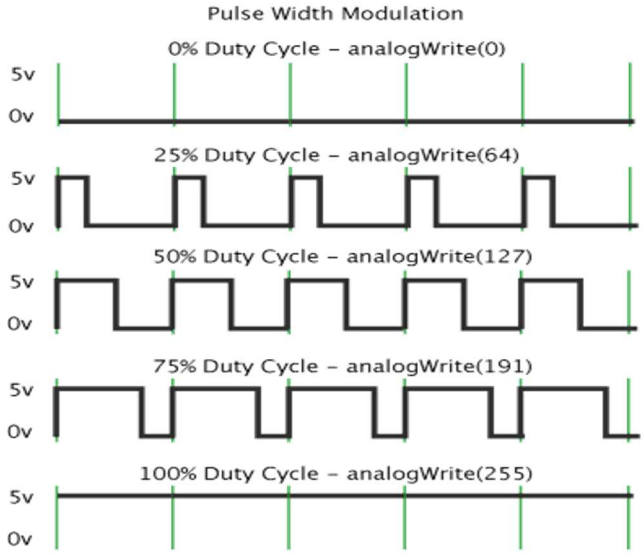
Example Code

Sets the output to the LED proportional to the value read from the potentiometer.

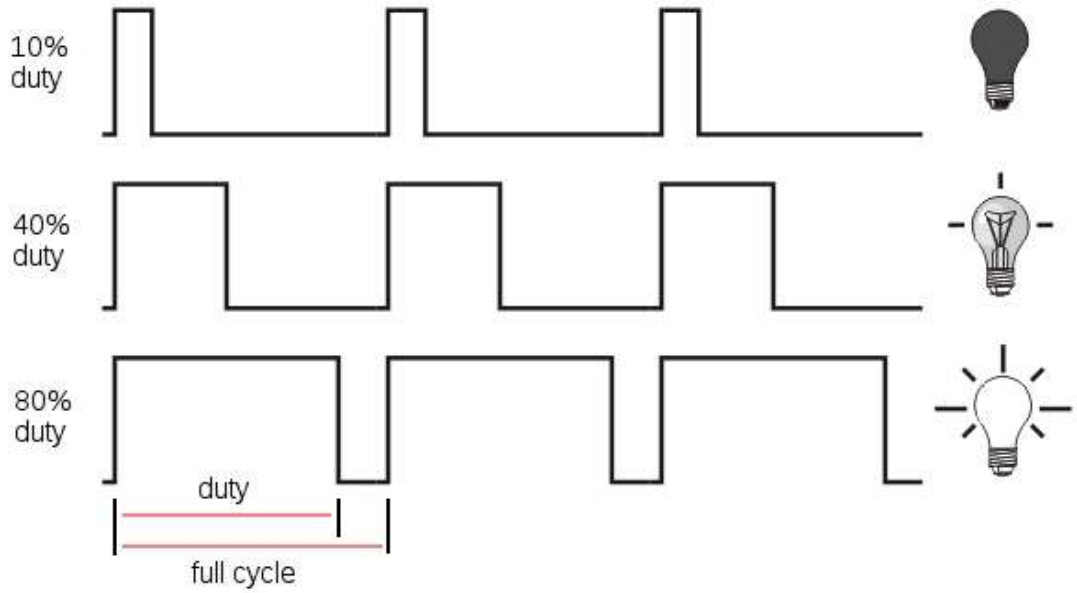
```
int ledPin = 9;       // LED connected to digital pin 9
int analogPin = 3;    // potentiometer connected to analog pin 3
int val = 0;          // variable to store the read value

void setup() {
  pinMode(ledPin, OUTPUT);  // sets the pin as output
}
```

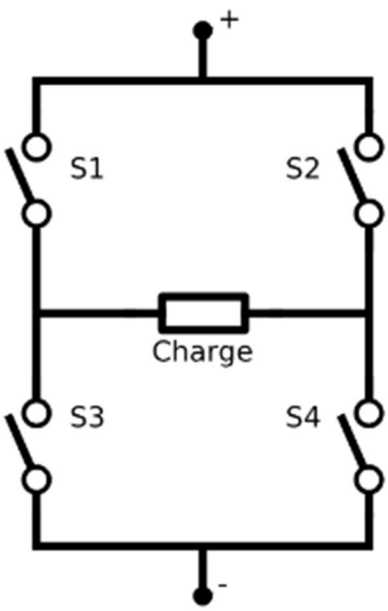
```
void loop() {
  val = analogRead(analogPin);  // read the input pin
  analogWrite(ledPin, val / 4); // analogRead values go from 0 to 1023,
analogWrite values from 0 to 255
}
```

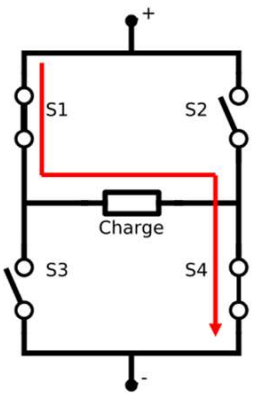


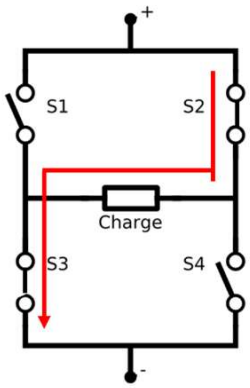
Application :



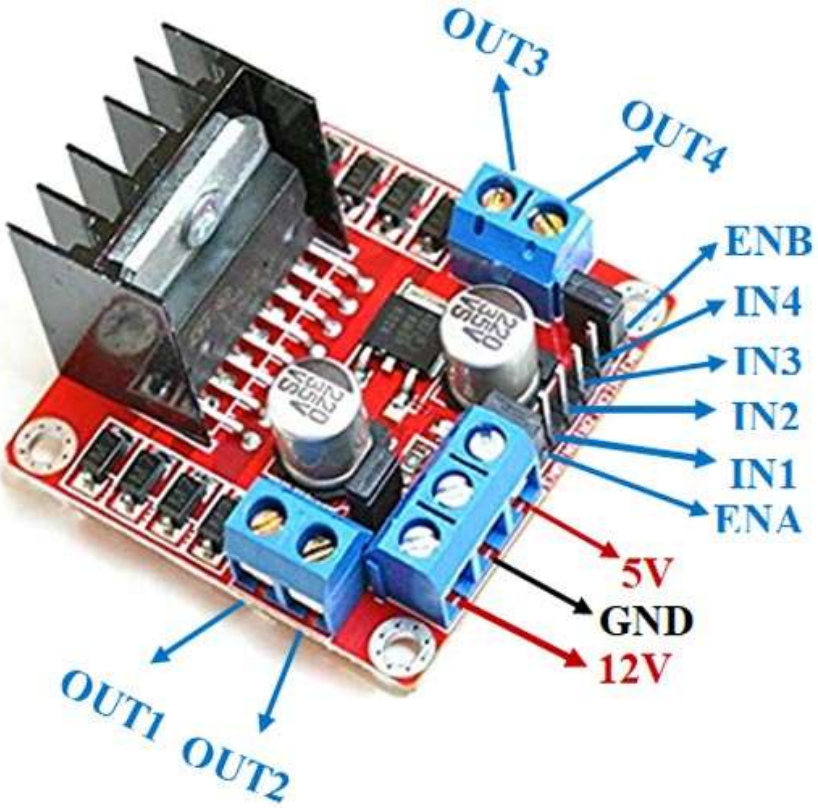
Commande de moteurs DC





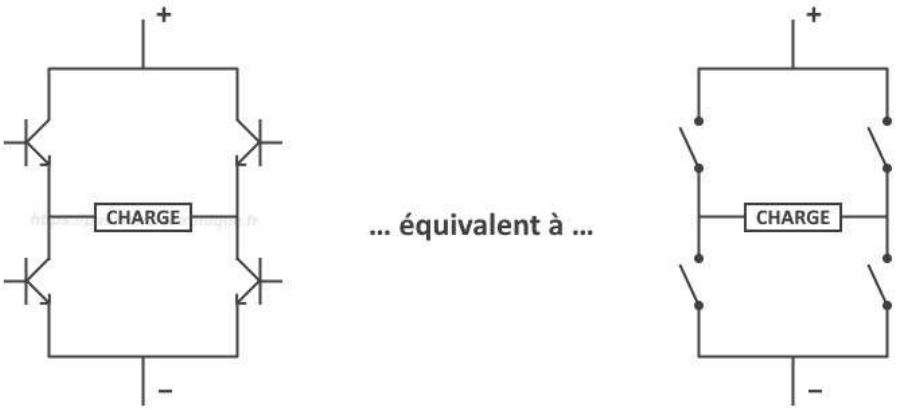


L298N Driver



Pin Name	Description
IN1 & IN2	Motor A input pins. Used to control the spinning direction of Motor A
IN3 & IN4	Motor B input pins. Used to control the spinning direction of Motor B
ENA	Enables PWM signal for Motor A
ENB	Enables PWM signal for Motor B
OUT1 & OUT2	Output pins of Motor A
OUT3 & OUT4	Output pins of Motor B
12V	12V input from DC power Source
5V	Supplies power for the switching logic circuitry inside L298N IC
GND	Ground pin

Schéma d'un "Pont en H"



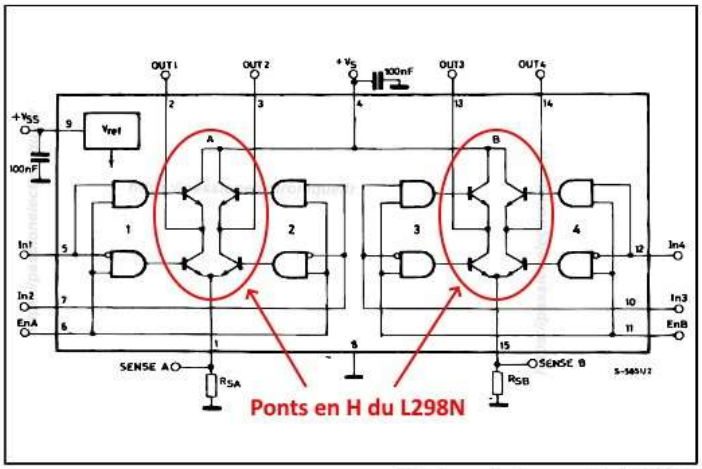
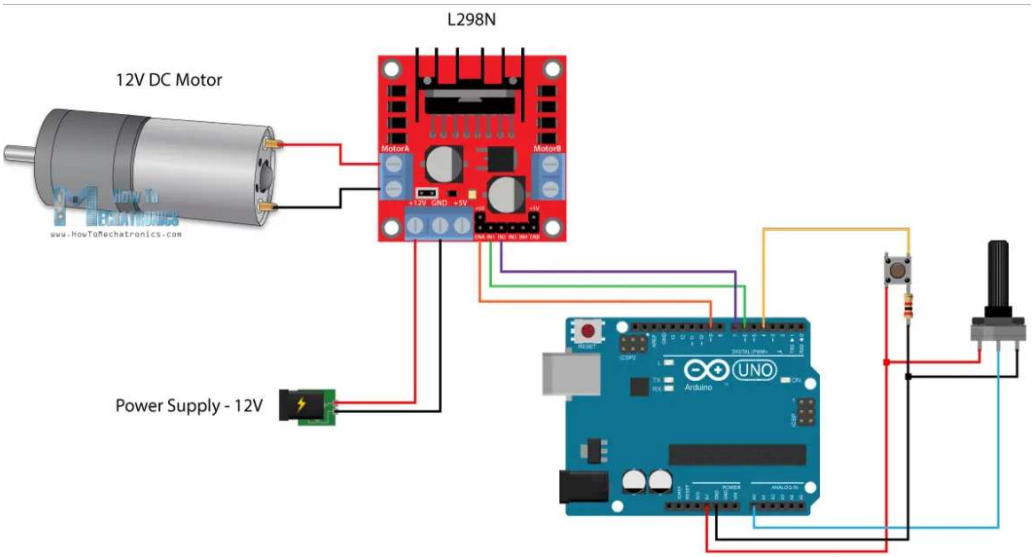


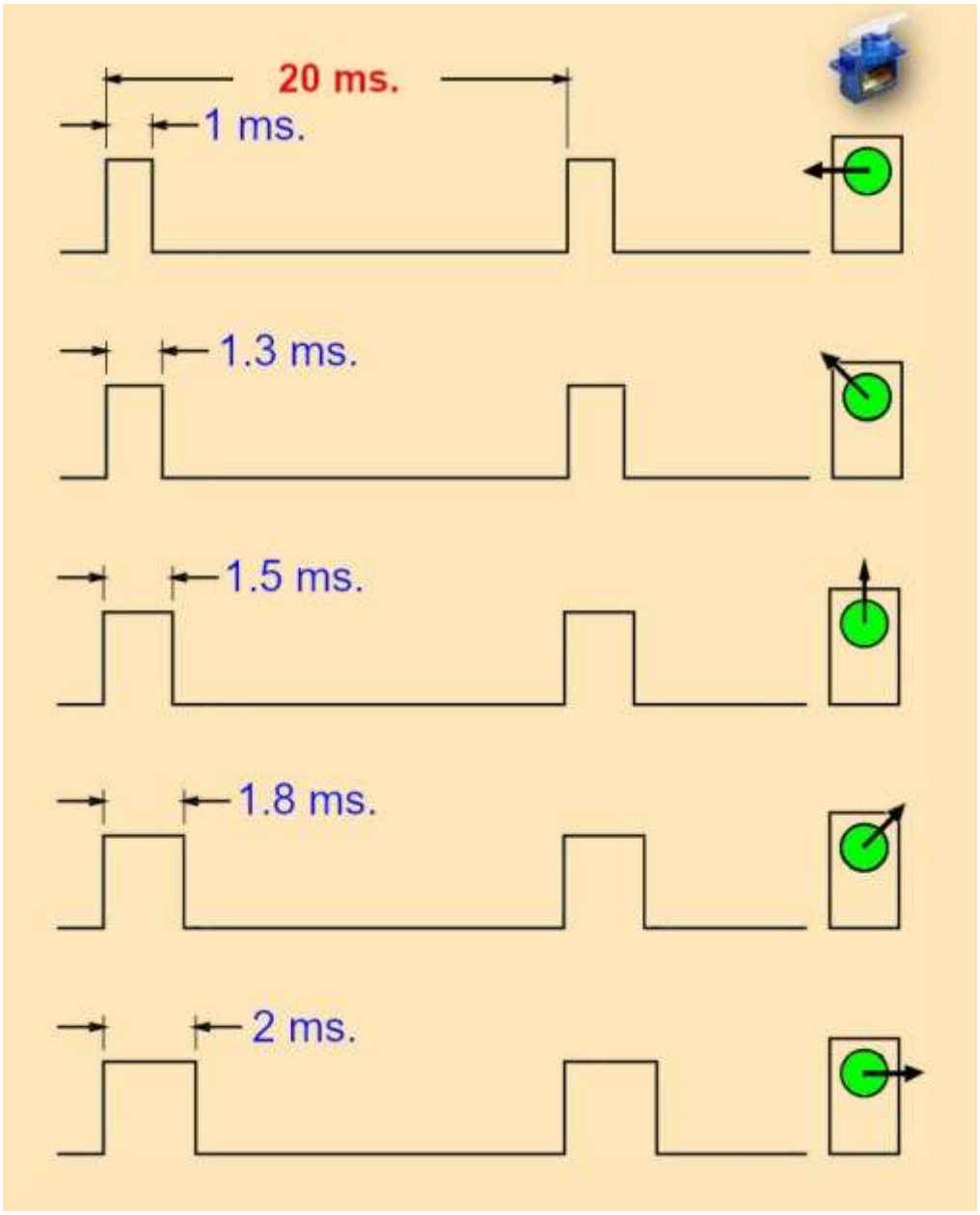
Schéma interne du L298N



EXEMPLE

Les servo moteurs

The recommended PWM frequency for servos is typically in the range of 40-200 Hz, with most servos using 50 Hz.


20 ms.
1 ms.
1.3 ms.
1.5 ms.
1.8 ms.
2 ms.