UK1102
VERSION 1.0

5A DC Motor Speed Controller (PWM)

This DC motor speed controller used the popular 555 Timer Integrated Circuit to generate a Pulse-Width-Modulated (PWM) output voltage with adjustable duty cycle in order to control the speed of a DC motor without sacrificing torque. The motor speed controller incorporates a high power MOSFET with a heat sink and can easily provide a continuous current of 5A to your DC motor or other DC load. The circuit also includes an LED whose brightness varies proportional to the relative speed of the motor therefore giving a visual feedback of the current speed.

The PWM frequency is approximately 140 Hz with the Duty Cycle adjustable from approximately 1% to 99%. The supply voltage can be between 6 to a maximum of 16V.

Recommended Generic Base: BX-1551G .

Note: Cana Kit offers custom design and modification services for most products. Please contact us at support@canakit.com if you require any specific changes to the operating logic or specifications of this product for your particular application, or even a completely new design.

Operating Instructions

1. Connect your motor (or DC load) to the motor terminals as indicated on the wiring diagram.

2. Connect a voltage of 6 to 16V DC to the circuit making sure of the correct polarity of the connection. Note that the voltage applied to the motor will be supply voltage applied to the circuit. It is recommended to add an appropriately rated fuse inline with the positive supply in order to protect the circuit from any possible short circuits.

3. You can now control both the speed of the motor through potentiometer "P1". The LED's brightness will also increase and decrease proportionally to the relative speed of the motor.
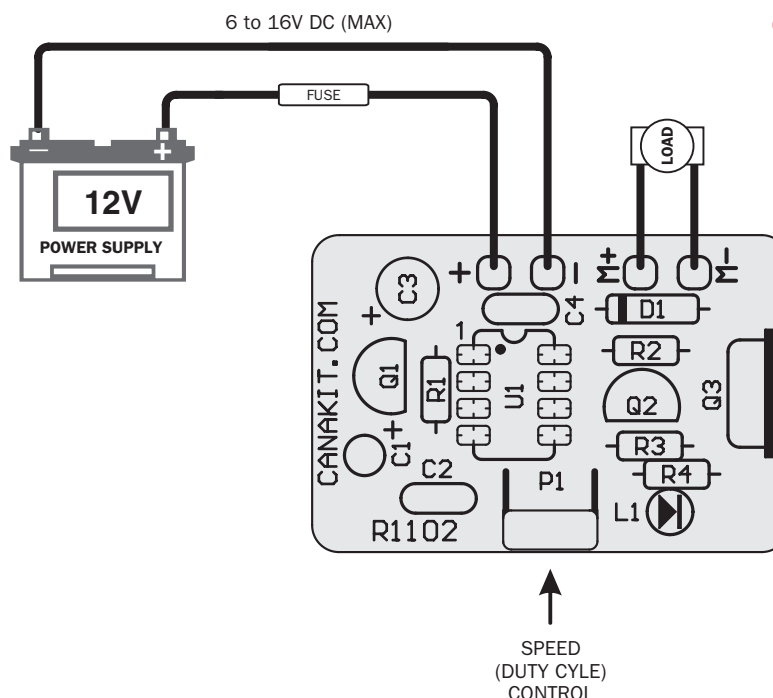
Wiring Diagram

* Recommended Generic Base: BX-1551G

Important Notes

An appropriately rated fuse (rated a little higher than the maximum current you expect to draw) is recommended to ensure safe operation.

The controller is NOT reverse-polarity protected and will be damaged if you connect the supply voltage with wrong polarity. Double check all connections before applying power and always turn off the power supply before making any wiring changes.

The MOSFET heat sink is electrically live. Make sure no wires touch the heat sink.

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Schematic Diagram