

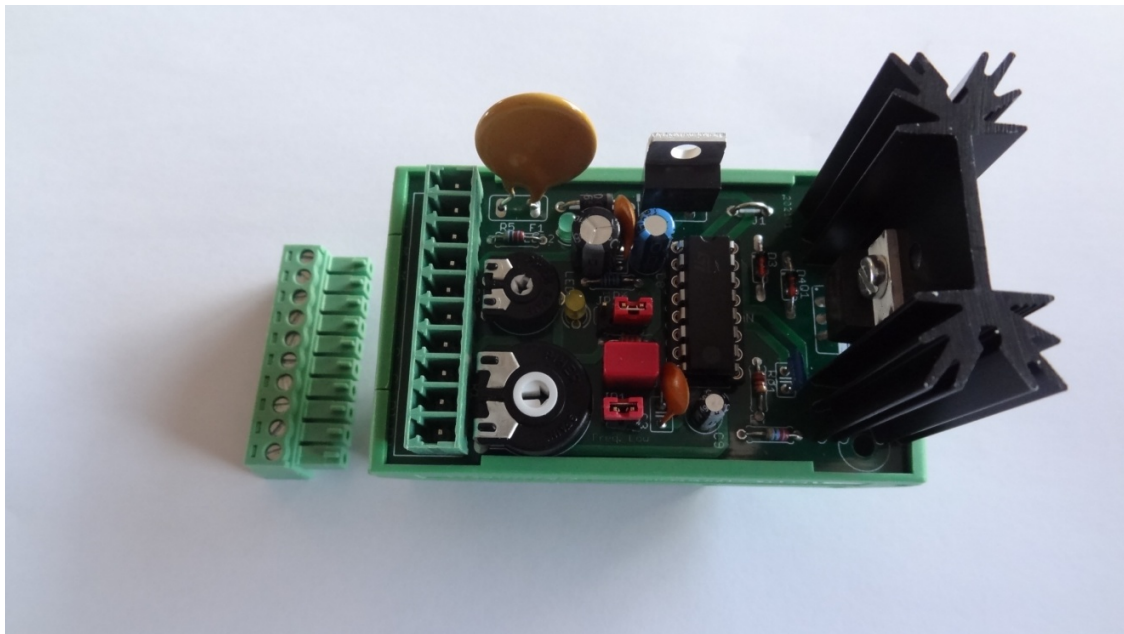
## PWM controller for analog cars

### **Purpose:**

This controller controls a motor using pulse modulation. This allows for better control of motors, allowing them to drive more slowly while maintaining tractive effort.

### **Application:**

To drive a car at a fixed speed on an analog racetrack, competing with other drivers.



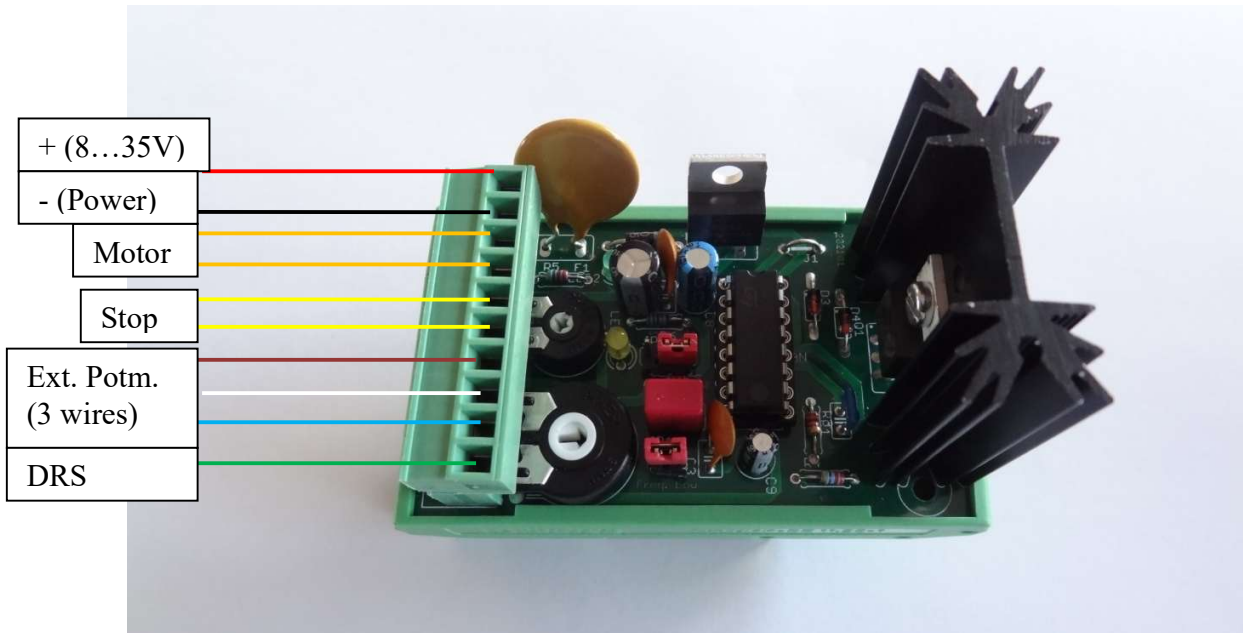
### **Features:**

- Option for external potentiometer (remote control)
- Motor start/stop connection
- Adjustable PWM frequency (about 10 Hz...55 kHz)
- Voltage present indicator
- DRS connection (motor will run at full speed)

### **Application:**

0-100% control for DC motors

**Connection:**



**Red/ Black**

=> Power from DC 8..35V

**Orange**

=> Motor

**Yellow**

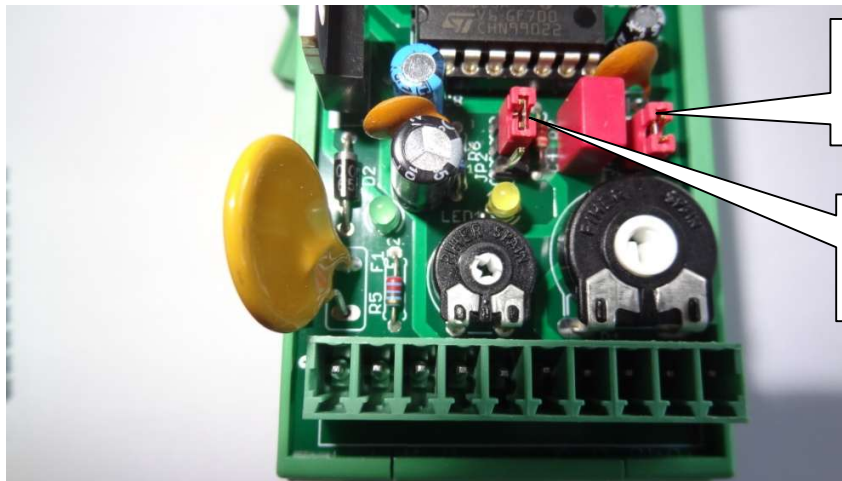
=> Start/ Stop

**Blue/ White/ Brown** => External potentiometer, where **white** is the center connection (wiper), **Blue** is 100%, **Brown** = 0%

**Green/ Blue**

=> DRS control

### Adjust:



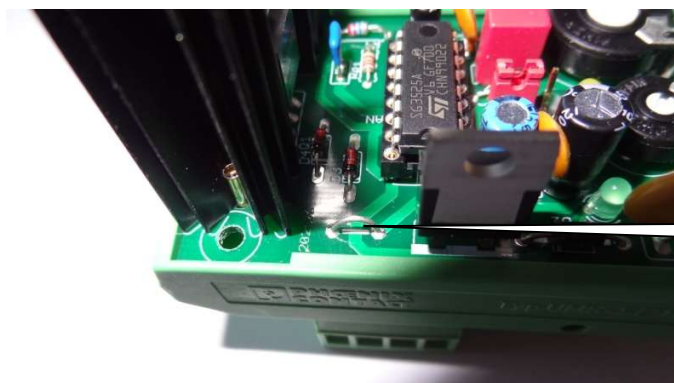
Frequency setting jumper  
Without jumper: 400...40 kHz  
With jumper: 10...1 kHz

Internal potentiometer active,  
Put jumper down for external  
connection

Turn the small potentiometer clockwise (lowest frequency), and use the large potentiometer to adjust the motor speed from 0-100%.

- Green LED** => power on
- Yellow LED** => control voltage 0-100%

### Measuring frequency:



Frequency measuring point

The frequency of the PWM signal can be adjusted with the small potentiometer and jumper. This can be done by ear and visually (motor response), but also with a scope or frequency meter. Connect the test probe to the jumper and then read the set frequency.

**External potentiometer:**

If the module is out of reach, an external potentiometer can provide a solution. The value of this potentiometer isn't really critical because the speed is essentially set at a fixed point (for the same car) after determining the maximum speed that can be reached without the car leaving the track.

**Note:**

The heat sink and automatic fuse can become warm.

An external DC power supply must be connected, which provides between 8 and 35 volts with the corresponding power. You can use the standard Carrera Transformer for this.

**Design:**

The PCB is constructed with a removable connector and easily snaps onto a standard DIN rail.

**Specifications:**

Housing approx. 75 x 45 mm

DIN rail mounting

Supply voltage: 8 and 35 V DC

Protected against incorrect power connection and overload

Output current approx. 3.5 amps

Green LED indicator (operational)

Yellow LED indicator (control 0 and 100%)

External potentiometer 1...100K (linear)