

# Connecting and Testing the DRV8833 Motor Drivers

ELEC391 – by Mohammad Oliyay

## Connections

Refer to the schematic provided in the datasheet for the correct pin and connection details. Before connecting the drivers and motors to high voltage, first supply 5V to the driver from the power supply on the lab bench, and use an oscilloscope to verify that it is functioning correctly.

Check that you can generate the correct control signals, with the desired PWM duty cycle and signal amplitude before you connect the drivers to the motors!

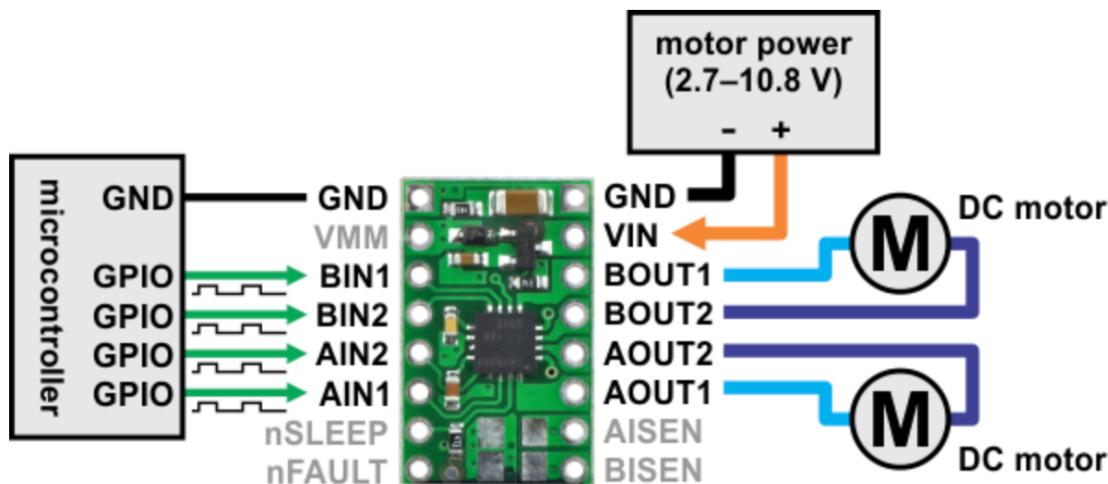


Figure 1 - Motor driver connection taken from the supplier's website.

High-voltage side

Connect to 5V to test connections

Oscilloscope probes to test driver's first channel

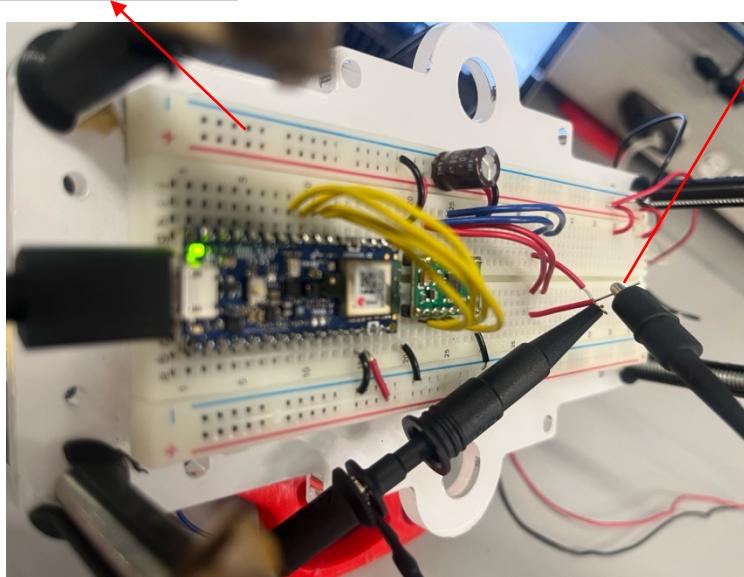


Figure 2 - Example circuit to test the wiring. Note the decoupling electrolytic capacitor on the power supply terminals. [?](#)

## Testing

Write a simple Arduino program to generate PWM signals on your connected pins and ensure the motor driver produces different duty cycles as expected. Conduct the following tests:

- Test various duty cycles to verify the output matches your expectations
- Test both channels of the motor driver to ensure they operate correctly
- Ensure the output PWM signal has a peak voltage of 5V

When you ensured the connections are correct, try increasing the supply voltage up to 10V and check that it is being reflected in the oscilloscope's output.

## Examples

Expected output with 50% duty cycle

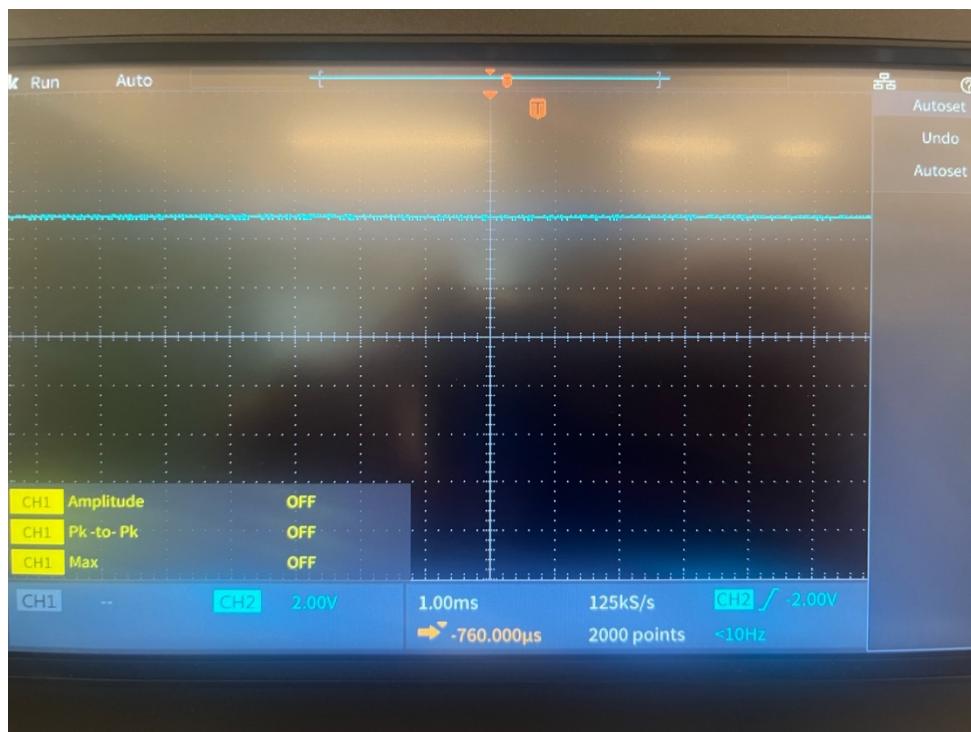
5V peak voltage.



Expected output with ~10% duty cycle



Expected output with 100% duty cycle



## Parallel Drivers

Sometimes, a single driver may not provide enough current to meet the requirements of your motors. In such cases, you can connect multiple drivers in parallel to create additional paths for current flow, ensuring sufficient power delivery to the motors. The idea is depicted in the Figure 3.

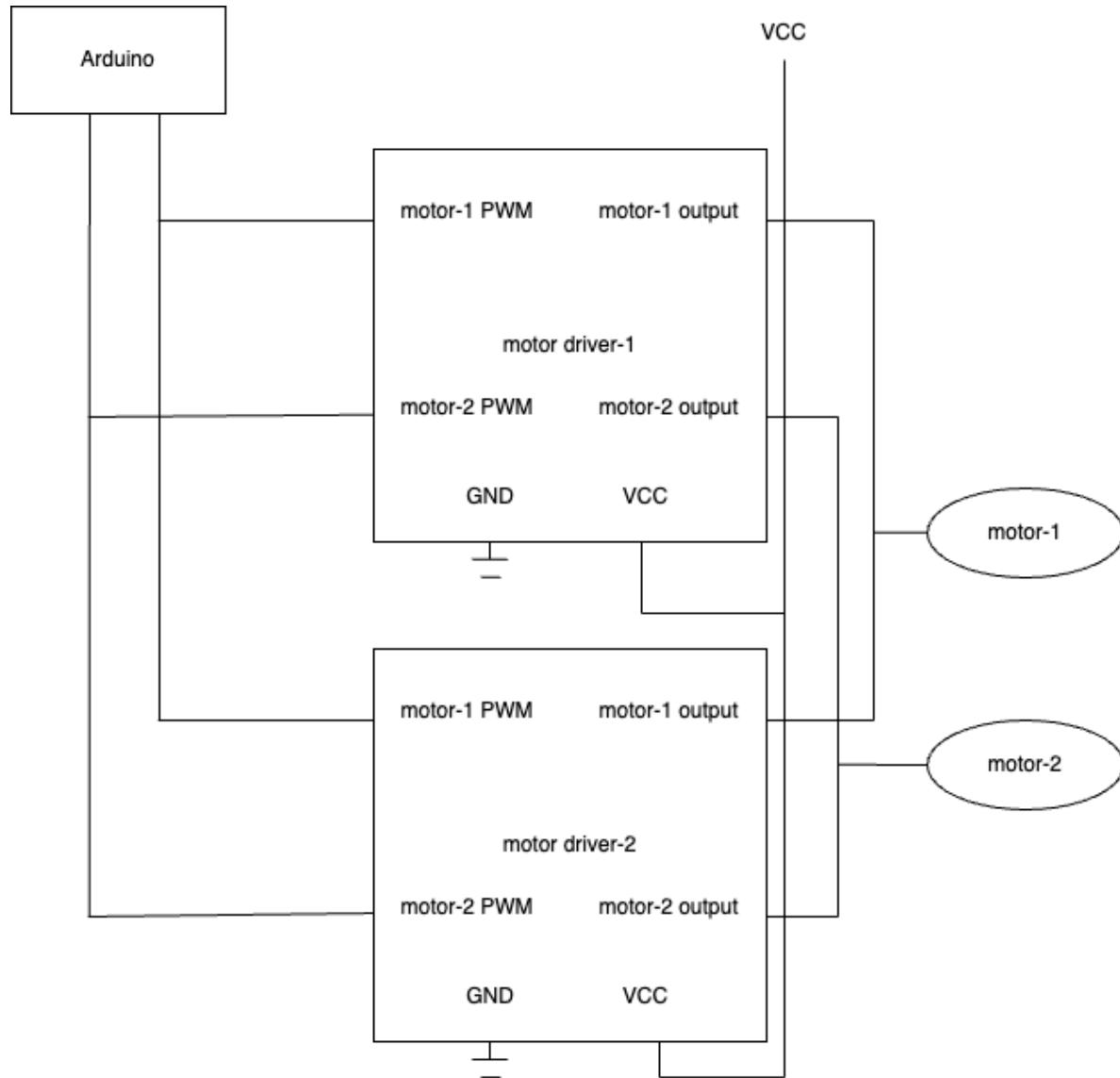


Figure 3 - Parallel motor drivers to supply more current.