Hands-On Labs

A Virtual Hands-on Lab Experience

ELECTRICAL ASSEMBLY MANUAL

ALL YOU NEED TO KNOW TO ELECTRICALLY ASSEMBLE THE ROBOTIC ARM

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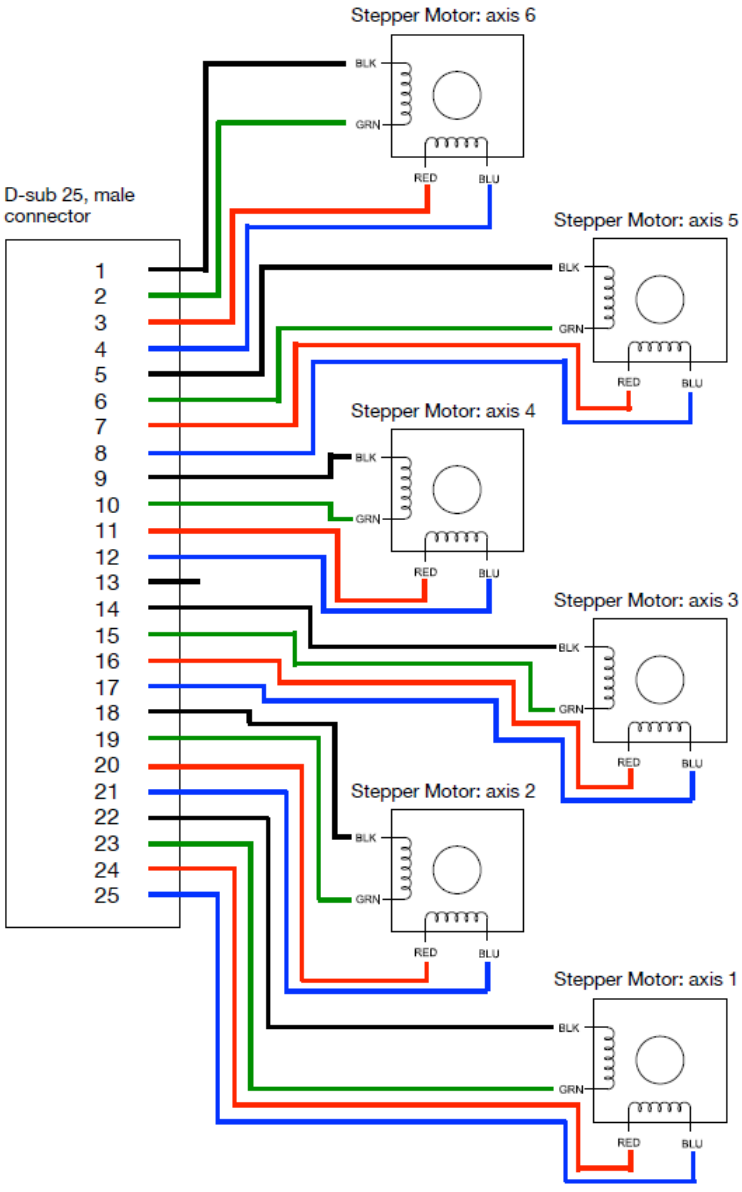
Components and Tools

A complete list with all the components and the tools required for this assembly can be found HERE.

Electrical Assembly Manual

Robotic Arm Module Wiring

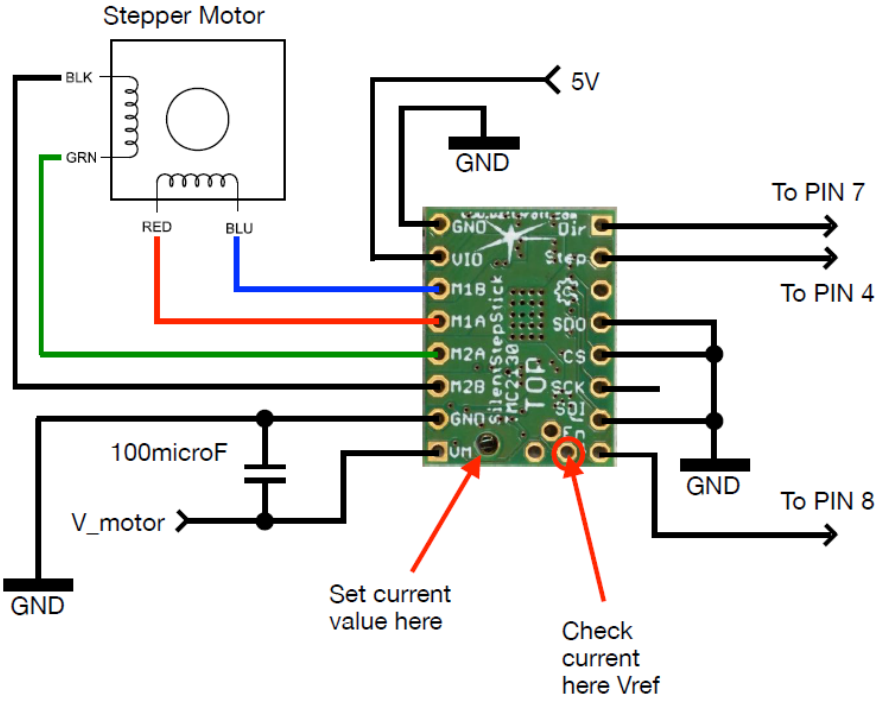


Motion Controllers Wiring by Axis:

Axis 6 (Nema 8 Stepper Motor) Low Current:

1. Connect the two highlighted terminals on the TMC2130 motor driver using soldering wire as it will be operating in standalone mode.

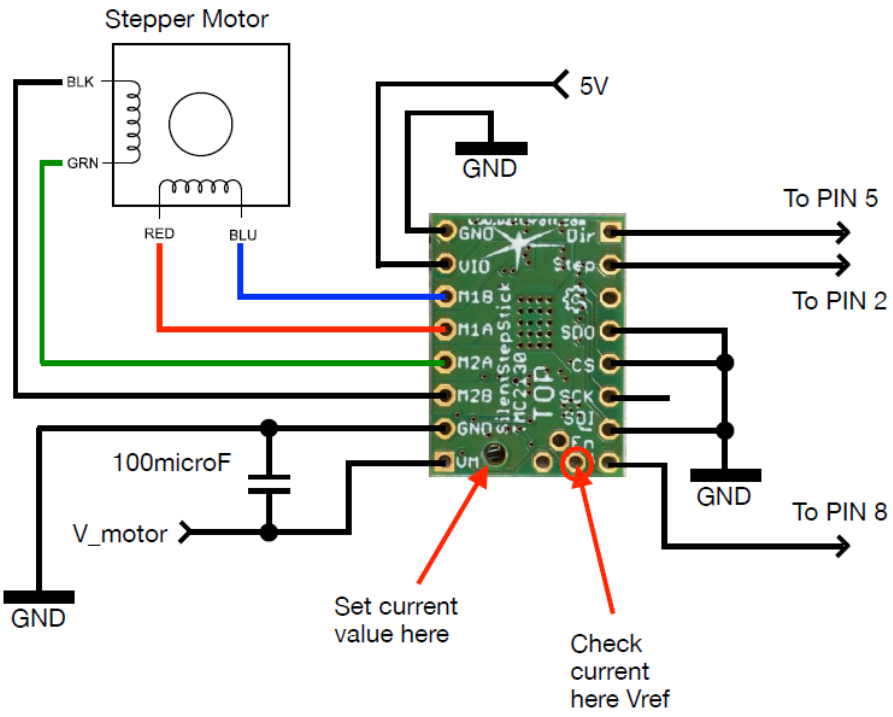
2. Connect the motor with the TMC2130 motor driver and the Arduino Mega as shown in the schematic below. The current value should not exceed 0.6A



Axis 5 (Nema 11 Stepper Motor) Low Current:

1. Connect the two highlighted terminals on the TMC2130 motor driver using soldering wire as it will be operating in standalone mode.

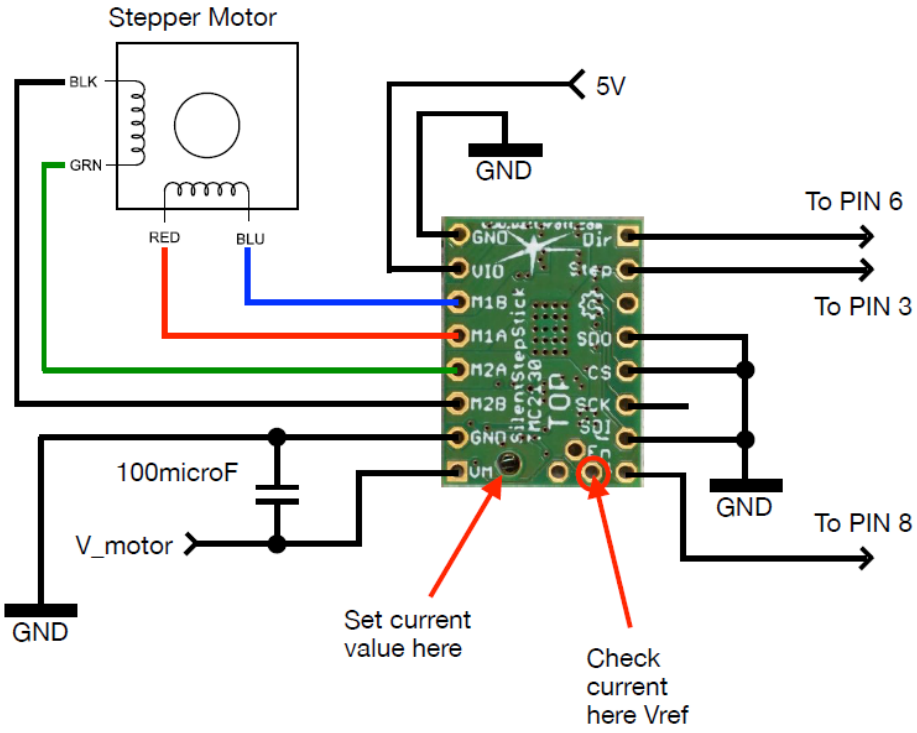
2. Connect the motor with the TMC2130 motor driver and the Arduino Mega as shown in the schematic below. The current value should not exceed 0.67A.



Axis 4 (Nema 11 Stepper Motor) Low Current:

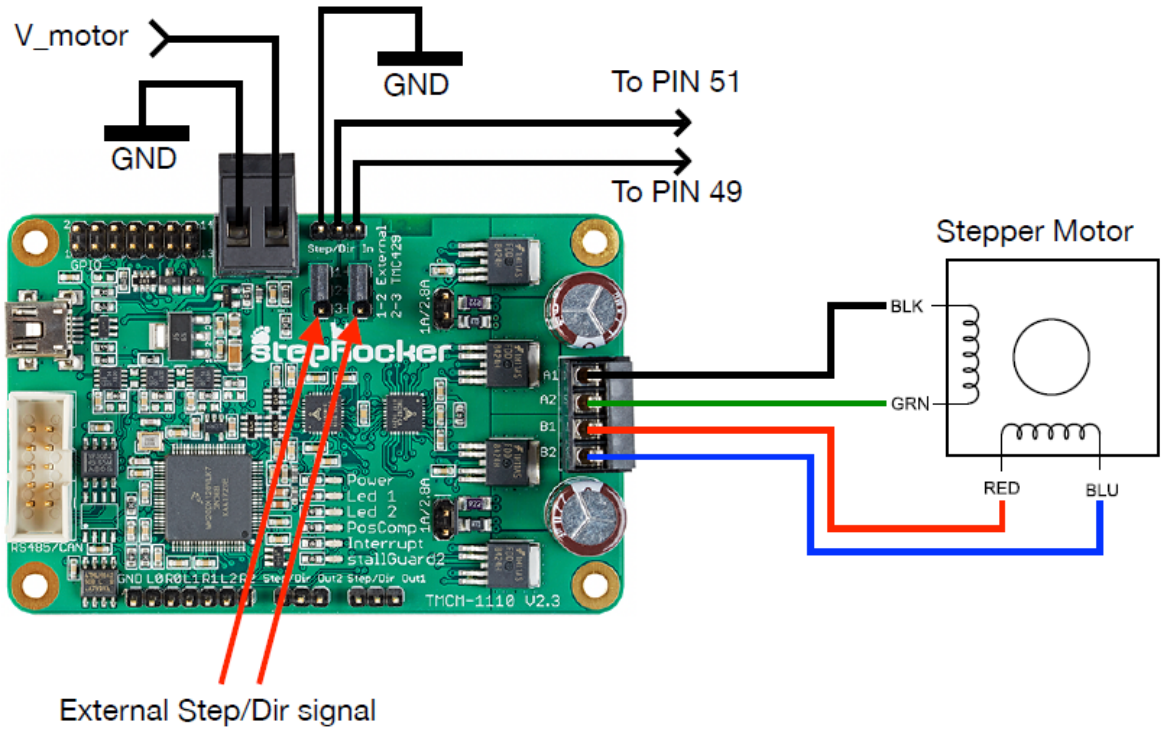
1. Connect the two highlighted terminals on the TMC2130 motor driver using soldering wire as it will be operating in standalone mode.

2. Connect the motor with the TMC2130 motor driver and the Arduino Mega as shown in the schematic below. The current value should not exceed 0.67A.



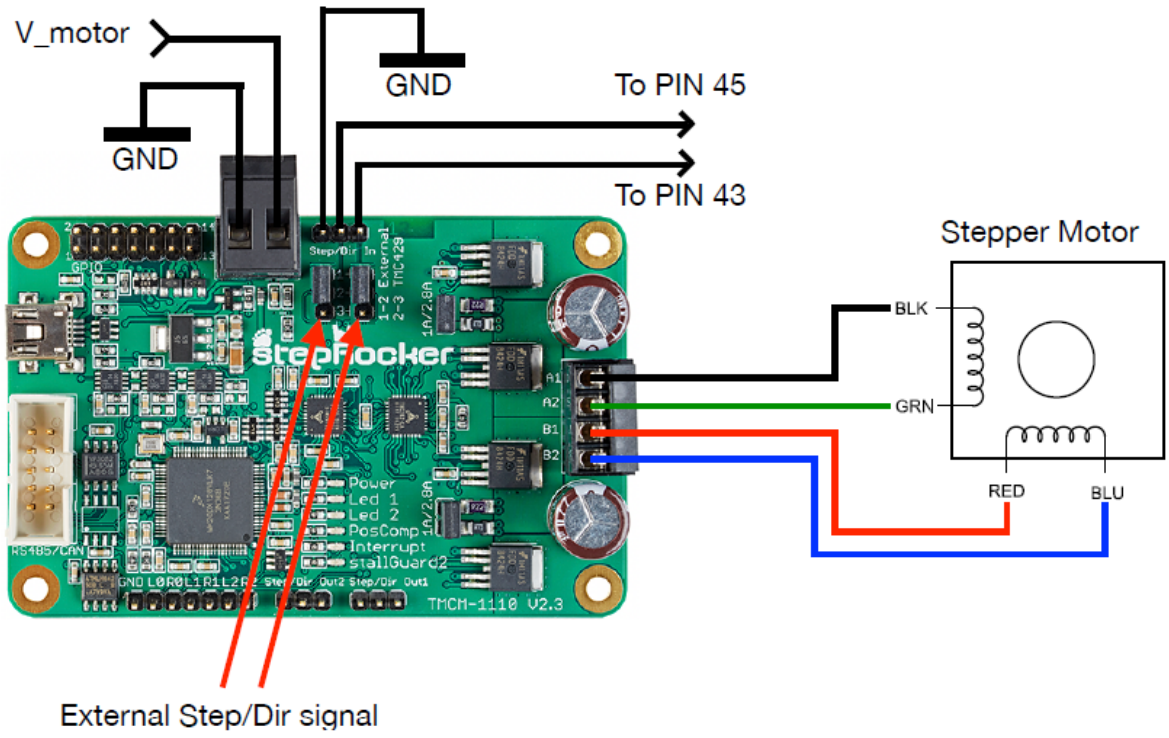
Axis 3 (Nema 17 Stepper Motor) High Current:

1. Connect the motor with the TMC1110 motor driver and the Arduino Mega as shown in the schematic below. The current value should not exceed 0.85A. Please refer to the module datasheet for information about setting the current.



Axis 2 (Nema 23 Stepper Motor) High Current:

1. Connect the motor with the TMC1110 motor driver and the Arduino Mega as shown in the schematic below. The current value should not exceed 2.80A. Please refer to the module datasheet for information about setting the current.



Axis 1 (Nema 23 stepper Motor) High Current:

1. Connect the motor with the TMC1110 motor driver and the Arduino Mega as shown in the schematic below. The current value should not exceed 2.80A. Please refer to the module datasheet for information about setting the current.