Motoron M2S24v14 Dual High-Power Motor Controller Shield for Arduino (No Connectors)
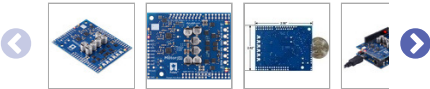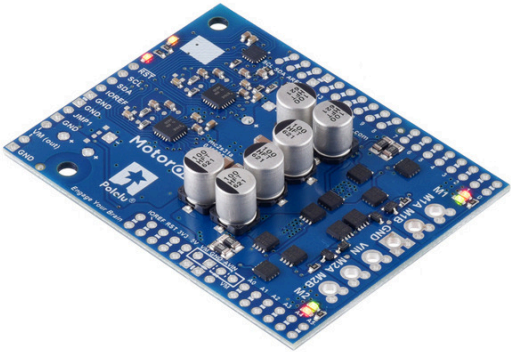
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The Motoron M2S24v14 Dual High-Power Motor Controller Shield for Arduino makes it easy to control two high-power DC motors from an Arduino or Arduino-compatible board through an I²C interface. The M2S24v14 supports motor supply voltages from **6.5 V to 40 V** and can deliver continuous output currents up to **14 A** per motor. This version is just the **motor controller by itself**, without any header pins or terminal blocks included.

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Description **Specs (14)** **Pictures (9)** **Resources (5)** FAQs (0) On the blog (0) **Distributors (7)**
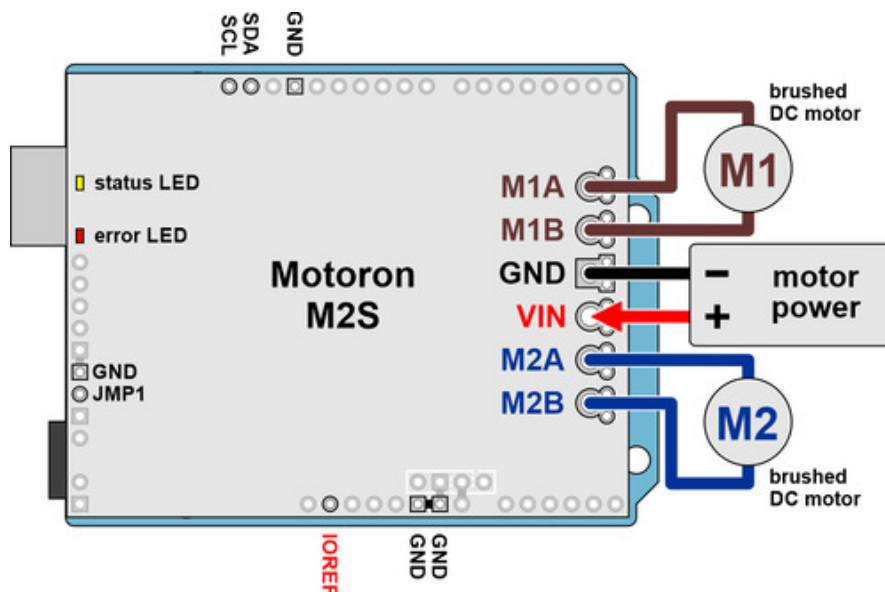
Overview

The Motoron M2S family of dual high-power motor controller shields makes it easy to independently control two bidirectional, brushed DC **motors** with an **Arduino** or compatible board, such as the **A-Star 32U4 Prime**. Unlike most of our **motor drivers** and motor driver **shields**, the Motoron does not require any PWM outputs or timers on your Arduino. Instead, the Arduino communicates with the Motoron using I²C, so only two I/O lines are needed. Four types are available so you can pick the one with the appropriate operating voltage range and output current capabilities for your project:

	Motoron M2S18v20 Dual High-Power Motor Controller Shield for Arduino	Motoron M2S18v18 Dual High-Power Motor Controller Shield for Arduino	Motoron M2S24v16 Dual High-Power Motor Controller Shield for Arduino	Motoron M2S24v14 Dual High-Power Motor Controller Shield for Arduino
Absolute max motor supply voltage:	30 V		40 V	
Recommended max nominal battery voltage:	18 V		28 V	
Max continuous current per channel:	20 A	18 A	16 A	14 A
Available versions:	• **assembled** • **kit**	• **assembled** • **kit**	• **assembled** • **kit**	• **assembled** • **kit**

| • **board only** | • **board only** | • **board only** | • **board only** |

Each of the four types above is available in three versions to provide different options for the through-hole connectors: they can be purchased as an assembled product with stackable headers and terminal blocks soldered in, as a kit with connectors included but not soldered in, or as a standalone board without connectors.

For a lower-power, lower-cost alternative Arduino shield, please consider the **Motoron M3S256 Triple Motor Controller Shield for Arduino**.
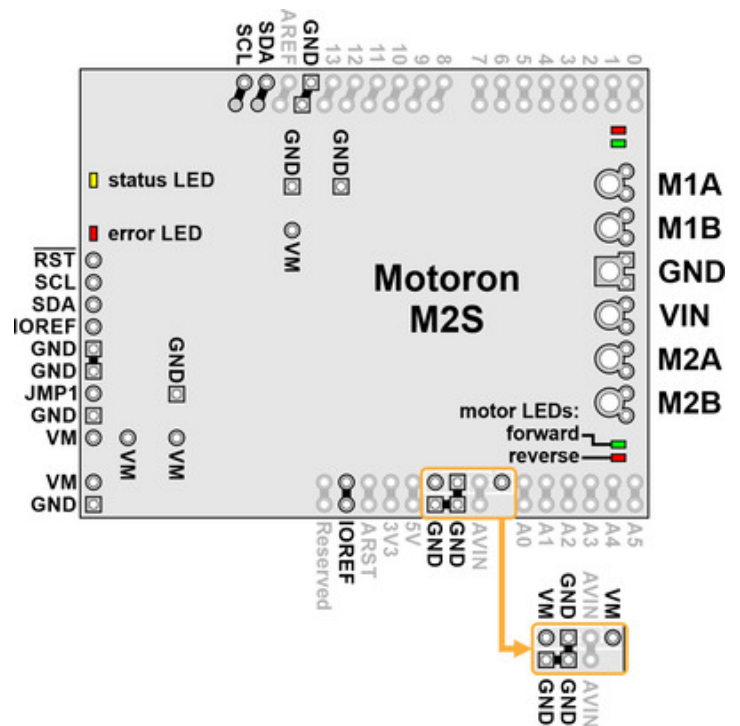
Details for item #5041

Motoron M2S24v14 Dual High-Power Motor Controller Shield for Arduino, top view.

The **M2S24v14** shield supports motor supply voltages from **6.5 V to 40 V** (absolute maximum, not intended for use with 36 V batteries) and can deliver continuous output currents up to **14 A** per motor. The M2S24v14 can be distinguished from other types of M2S shields by its **smaller** discrete MOSFETs and the number **100** on top of the tall silver electrolytic capacitors.

This version is just the assembled PCB module as shown above, **with no connectors included**. It is also available with **connectors soldered** or as a **kit with connectors included but not soldered in**.

Features and specifications

- Two motor control channels allow for independent control of up to two bidirectional brushed DC motors

- Reverse-voltage protection on motor power supply

- Logic voltage range: 3.0 V to 5.5 V

- Control interface: I²C

- I²C clock speed: up to 400 kHz

- Optional cyclic redundancy checking (CRC)

- Configurable motion parameters:

  - Max acceleration/deceleration forward/reverse

  - Starting speed forward/reverse

  - Direction change delay forward/reverse

- PWM frequency: eight options available from 1 kHz to 80 kHz

- Current sensing

- Configurable hardware current limiting

- Command timeout feature stops motors if the Arduino stops functioning

- Configurable automatic error response

- Motor power supply (VIN) voltage measurement

- Optional pins make it easy to power the Arduino from reverse-protected motor power, either directly or through an **external regulator** (not included)

- Two status LEDs

- Motor direction indicator LEDs

- **Motoron Arduino library** simplifies getting started using the Motoron with an Arduino or compatible controller

- Comprehensive **user's guide**

Motoron M2S Dual High-Power Motor Controller Shield pinout.

Real-world power dissipation consideration

The MOSFETs can handle large current spikes for short durations (e.g. 100 A for a few milliseconds), and the driver's current chopping will keep the average current under the set limit. The peak ratings are for quick transients (e.g. when a motor is first turned on), and the continuous rating is dependent on various conditions, such as the ambient temperature. PWMing the motor will introduce additional heating proportional to the frequency. The actual current you can deliver will depend on how well you can keep the motor driver cool. The