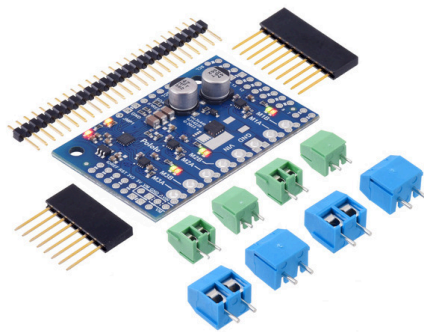# Motoron M3S550 Triple Motor Controller Shield Kit for Arduino

Pololu item #: 5069
Brand: Pololu   **supply outlook**
Status: Active and Preferred ❓
✔ **RoHS 3**

Price break	Unit price (US$)
1	25.95
5	23.87
25	21.96
100	20.21

Quantity: [1]   Add to cart

backorders *allowed*   Add to list

The Motoron M3S550 Triple Motor Controller Shield for Arduino makes it easy to control DC motors from an Arduino or Arduino-compatible board through an I²C interface. Each module can independently control up to three motors, and multiple shields can be stacked on top of the same Arduino for projects that need to control even more motors. The M3S550 supports motor supply voltages from **1.8 V to 22 V** and can deliver continuous output currents up to **1.7 A per motor**. This version ships with a variety of header pin and terminal block options included **but not soldered in**.

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Description   **Specs (15)**   **Pictures (14)**   **Resources (5)**   FAQs (0)   **On the blog (1)**   **Distributors (32)**

Overview

The Motoron M3S550 shield makes it easy to control up to three bidirectional, brushed DC **motors** with an **Arduino** or compatible board, such as the **A-Star 32U4 Prime**. It supports motor supply voltages from 1.8 V to 22 V and can deliver continuous output currents up to 1.7 A per motor. Multiple Motoron controllers can be stacked on top of each other, allowing independent control of many motors. 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 regardless of how many Motorons you connect.
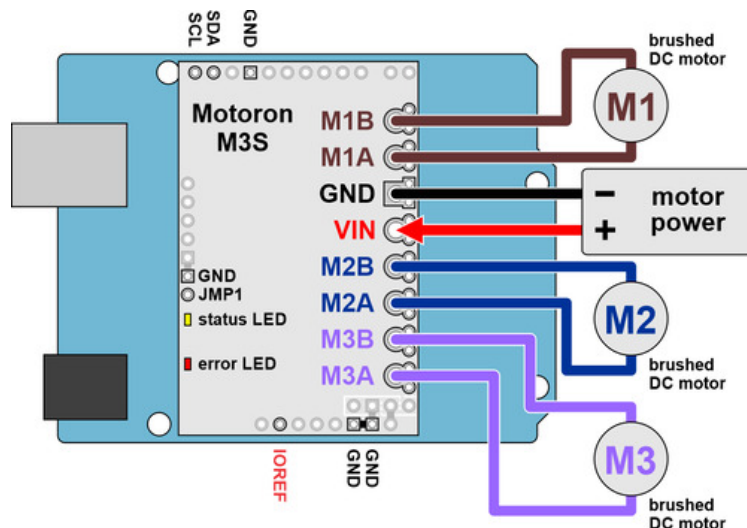

Three M3S550 versions are available to provide different options for the through-hole connectors:

- **Motoron M3S550 with soldered stackable headers and terminal blocks**

- **Motoron M3S550 with headers and terminal blocks included but not soldered in**

- **Motoron M3S550 without any headers or terminal blocks included**

For applications using a Raspberry Pi, consider the **Motoron M3H550** instead (also available with different connector options).

Details for item #5069
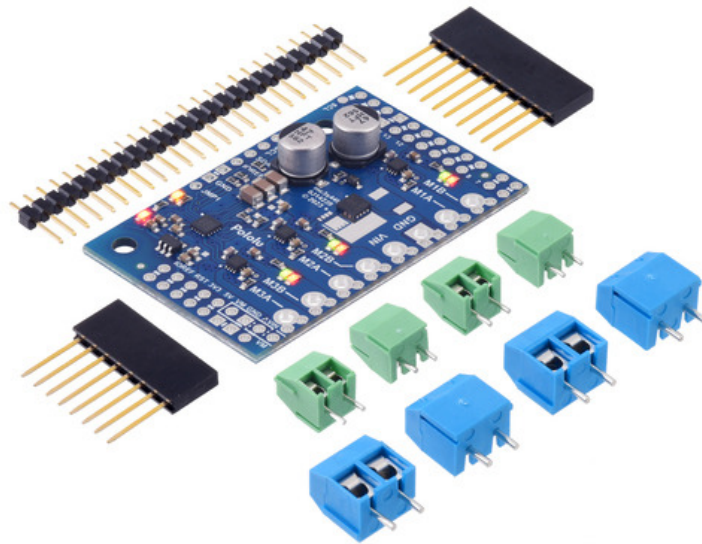
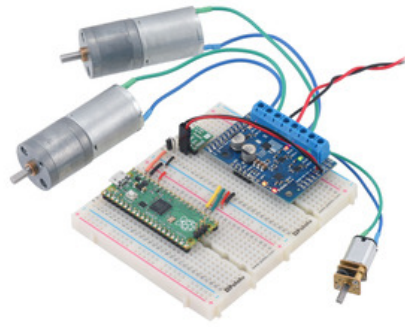**Motoron M3S550 Triple Motor Controller Shield Kit for Arduino.**

This version of the Motoron M3S550 is a **kit** that ships with the following connectors included but not soldered in:

- One 1×10 stackable female header
- One 1×8 stackable female header
- Four **2-pin 3.5mm terminal blocks**
- Four **2-pin 5mm screw terminal blocks**
- One 1×25 **breakaway male header** (you can cut or break this into smaller header strips to install as desired)

There are more parts included than can be soldered to the board, providing different assembly options to suit a variety of applications. Additional **connector** options are available separately, and you can also solder wires directly to the board for more compact installations.

> **Note:** For applications where the Motoron will be used as a standalone board or at the **top** of a shield stack, it can be assembled with the included 0.1″ male header pins and larger (5.0mm-pitch) blue terminal blocks. For applications where the Motoron will be one of the intermediate members of a stack of shields, we recommend assembling it with the stackable headers and smaller (3.5mm-pitch) green terminal blocks (just like our **version with connectors already soldered**). The terminal blocks are intended to be soldered to the larger through-holes for the power and motor connections, and the blue ones should get locked together prior to installation (see our short **video on terminal block installation**).
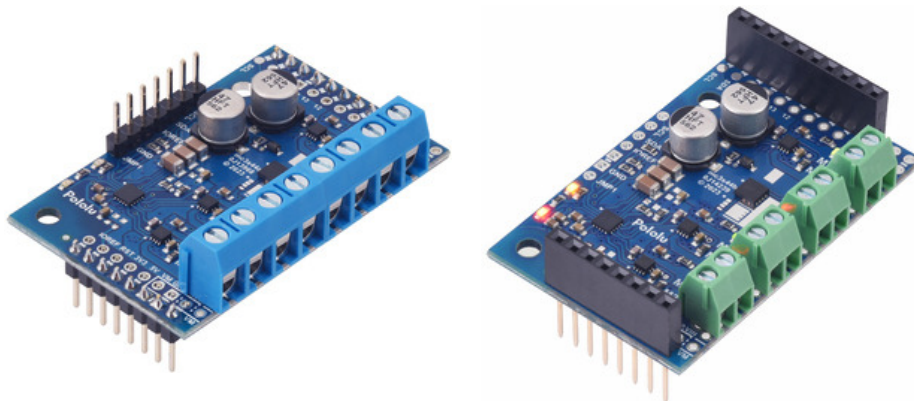
A Raspberry Pi Pico on a breadboard using a Motoron M3S550 shield to control three motors.

Motoron M3S550 shield being controlled by an Arduino Uno.

Features and specifications

- Three motor control channels allow for independent control of up to three bidirectional brushed DC motors per Motoron

- Wide motor supply voltage range: 1.8 V to 22 V (absolute maximum)

- Maximum output current per motor: 1.7 A continuous, 5 A peak for <1 second

- Reverse-voltage protection on motor power supply (down to −20 V)

- Logic voltage input (IOREF) range: 3.1 V to 5.5 V

- Logic voltage: 3.3 V typical, but lower if IOREF is less than 3.3 V (produced by an LDO powered from IOREF)

- Compatible with 3.3 V and 5 V I²C busses (maximum signal voltage is 6.5 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

- 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 using the Motoron with an Arduino or compatible controller

- Comprehensive **user's guide**
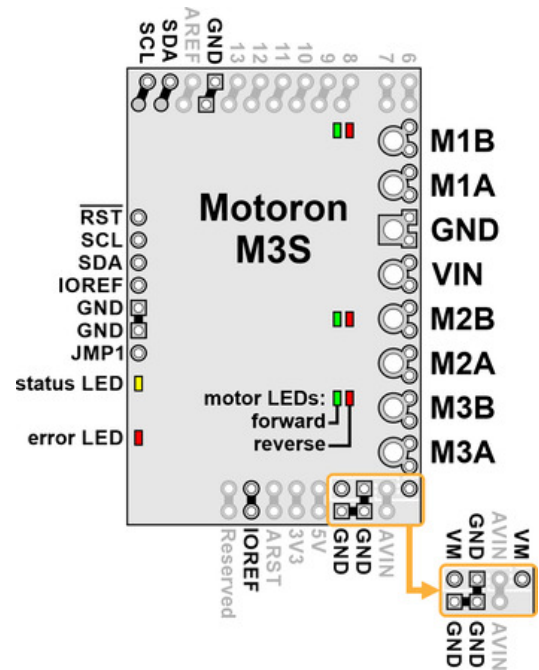
Motoron M3S256 or M3S550 Triple Motor Controller Shield pinout.

The Motoron family

The tables below list the members of the Motoron family and show the key differences among them. Each type is available in several versions to provide different options for the through-hole connectors: they can be purchased as an assembled product with

connectors soldered in, as a kit with connectors included but not soldered in, or (for Arduino and Raspberry Pi expansions) as a standalone board without connectors.

Motoron motor controllers micro versions			
M1T550	**M2T550**	**M1T256**	**M2T256**
M1U550	**M2U550**	**M1U256**	**M2U256**
Control interface:	I²C or UART serial		
Motor channels:	1 (single)	2 (dual)	1 (single)	2 (dual)
Minimum motor supply voltage:	1.8 V		4.5 V	
Absolute max motor supply voltage:	22 V		48 V	
Recommended max nominal battery voltage:	16 V		36 V	
Max continuous current per channel:	1.8 A	1.6 A	2.2 A	1.8 A
Logic voltage range:	3.0 V to 4.9 V[1]		3.0 V to 5.5 V	
Current sensing/limiting:	–	–	–	–
Available versions with I²C:	• **headers soldered** • **headers included**	• **headers soldered** • **headers included**	• **headers soldered** • **headers included**	• **headers soldered** • **headers included**
Available verions with UART serial:	• **headers soldered** • **headers included**	• **headers soldered** • **headers included**	• **headers soldered** • **headers included**	• **headers soldered** • **headers included**
Price:	$12.49 – $14.49	$15.95 – $17.95	$16.95 – $18.95	$23.95 – $25.95

1 The M1x550 and M2x550 are not recommended for use with 5V nominal logic.

Motoron motor controllers Arduino and Raspberry Pi form factor versions					
M3S550	**M3S256**	**M2S24v14**	**M2S24v16**	**M2S18v18**	**M2S18v20**
M3H550	**M3H256**	**M2H24v14**	**M2H24v16**	**M2H18v18**	**M2H18v20**
Control interface:	I²C				
Motor channels:	3 (triple)		2 (dual)			
Minimum motor supply voltage:	1.8 V	4.5 V	6.5 V			
Absolute max motor supply voltage:	22 V	48 V	40 V		30 V	
Recommended max nominal battery voltage:	16 V	36 V	28 V		18 V	
Max continuous current per channel:	1.7 A	2 A	14 A	16 A	18 A	20 A
Logic voltage range:	**M3S550** 3.1 V to 5.5 V **M3H550** 3.0 V to 4.9 V[1]	3.0 V to 5.5 V	3.0 V to 5.5 V			
Current sensing/limiting:	–	–	✔	✔	✔	✔
Available versions for Arduino:	**M3S550** • **assembled** • **kit** • **board only**	**M3S256** • **assembled** • **kit** • **board only**	**M2S24v14** • **assembled** • **kit** • **board only**	**M2S24v16** • **assembled** • **kit** • **board only**	**M2S18v18** • **assembled** • **kit** • **board only**	**M2S18v20** • **assembled** • **kit** • **board only**

Available versions for Raspberry Pi:	M3H550	M3H256	M2H24v14	M2H24v16	M2H18v18	M2H18v20
	• **assembled** • **kit** • **board only**	• **assembled** • **kit** • **board only**	• **assembled** • **kit** • **board only**	• **assembled** • **kit** • **board only**	• **assembled** • **kit** • **board only**	• **assembled** • **kit** • **board only**
Price:	$20.95 – $30.95	$34.95 – $44.95	$59.95 – $69.95	$79.95 – $89.95	$59.95 – $69.95	$95.95 – $104.95

1 The M3H550 is <u>not</u> recommended for use with 5V nominal logic.