



Sabertooth 2X12 Quick Start Guide

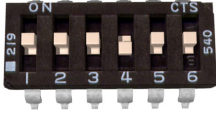
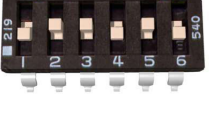
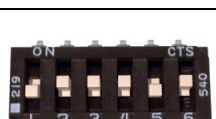
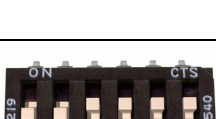
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Congratulations on your purchase of a Sabertooth 2X12 regenerative motor driver. Sabertooth 2X12 is one of the most flexible and configurable motor drivers on the market. As a result, it must be set to the correct operating mode before use. Below is a generalized hookup description of a Sabertooth 2X12. On the reverse side is a chart of some of the most commonly used operating modes.

Battery connections – The positive wire connects to the B+ terminal and the negative wire connects to the B- terminal. Using a polarized mating battery connector is recommended to ensure a reliable connection. B- (negative) is internally connected to 0V and can be used as a circuit ground. Don't get B+ and B- connected backwards! Motor connections – Connect DC brushed Motor 1 to the M1A and M1B terminals, and Motor 2 to the M2A and M2B terminals. S1 – This is the primary signal input. It must be connected to something, e.g. a R/C receiver signal, analog voltage or serial line. S2 - This is the secondary signal input, used to control the second motor, or for serial network functionality. Mounting: Sabertooth 2x12 mounts with four 4-40 machine screws (included) on a 1.5" x 2" hole pattern. For best thermal performance it should be mounted with the bottom aluminum heat spreader connected directly to a metal chassis if possible. Indicator LEDs: The red Error LED will light to indicate overheating or current limit. The green Status1 LED will glow dimly when power is applied. The green Status2 LED will flash out the detected number of lithium cells when lithium mode is enabled. The green Status2 LED and red Error LED will blink simultaneously when a low voltage condition has been detected.	Specs: Input voltage: 6V-24V Output current: 12A Peak Output current: 25A Operating modes: Analog, R/C, Serial
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Operating mode quick reference chart All options are set via the switches

	Analog control, linear, independent: a 0V to 5V analog input is connected to terminals S1 and S2. 0V is full reverse, 5V is full forward, 2.5V is stop.
	Microcontroller pulses, independent linear control: An R/C servo signal is connected to terminals S1 and S2. A 1000us – 2000us pulse controls speed and direction. 1500us is stop.
	Radio control, differential drive, exponential: An R/C servo signal is connected to terminals S1 and S2. The Sabertooth will autocalibrate the center and endpoints of the signal.
	Simplified Serial, 38400 Baud: A TTL level 8N1 serial data stream is connected to terminal S1. Control is with single byte commands. Motor 1: 1 is full reverse, 64 is stop and 127 is full forward. Motor 2: 128 is full reverse, 192 is stop and 255 is full forward.
	Packetized Serial, address 128: A TTL level 8N1 serial data stream is connected to terminal S1. Control is via a multi-byte packet.
	Lithium cutoff option: When switch 3 is in the down position (in any operating mode) the Sabertooth will shut down at 3.0V per cell. This protects lithium batteries from damage.

Sabertooth features many more operating modes and options not shown here. See full manual details.