

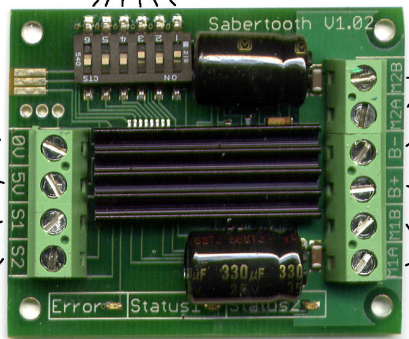


# Sabertooth 2X10 Quick Start Guide

July 2006

Dimension **Engineering**

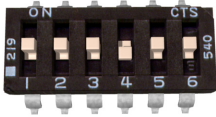
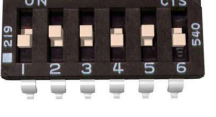
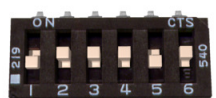
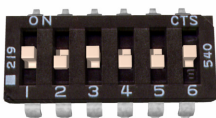
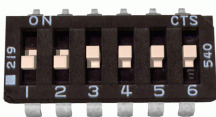
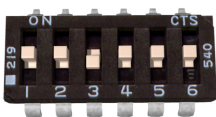
Congratulations on your purchase of a Sabertooth 2X10 regenerative motor driver. Sabertooth 2X10 is one of the most flexible and configurable motor drivers on the market. As a result, it must be set to the correct operating mode before use. Below is a generalized hookup diagram of a Sabertooth 2X10. On the reverse side is a chart of some of the most commonly used operating modes.

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| <p style="text-align: center;"><b>Sabertooth 2X10 motor driver pinout</b></p> <p style="text-align: center;">These DIP switches are used to set the operating mode of the driver</p>  <p>0V is internally connected to B-. It provides a circuit ground (GND) for your control circuitry</p> <p>5V is a regulated 5V supply provided by the driver. Drawing more than 10mA can reduce performance of the driver.</p> <p>S1 is the primary signal input. It must always be connected to something e.g. a R/C receiver signal or analog voltage</p> <p>S2 is the secondary signal input, used to control the second motor, or for serial network functionality.</p> <p>M2A and M2B connect to the two wires of your second DC brushed motor</p> <p>B- connects to the negative terminal of your battery. It is internally connected to 0V and can be used as a circuit ground</p> <p>B+ connects to the positive terminal of your battery. The max recommended battery voltage is 24V</p> <p>M1A and M1B connect to the two wires of your first DC brushed motor</p> <p style="text-align: center;"><b>Don't get B+ and B- connected backwards!</b><br/><b>Make sure you have the DIP switches configured correctly for the mode you are using!</b></p> | <p><b>Specs:</b></p> <p>Input voltage:<br/>6V-24V</p> <p>Output current:<br/>10A</p> <p>Peak Output current:<br/>15A</p> <p>Operating modes:<br/>Analog, R/C, Serial</p> |
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For full product documentation and manual, please visit <http://www.dimensionengineering.com/Sabertooth2X10.htm>

## Sabertooth 2X10

Operating mode quick reference chart All options are set via the switches

|   |   |
|---|---|
|    | <p><b>Analog control, linear, independent:</b><br/>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.</p>   |
|    | <p><b>Microcontroller pulses, independent linear control:</b> An R/C servo signal is connected to terminals S1 and S2. A 1000us – 2000us pulse controls speed and direction. 1500us is stop.</p>  |
|    | <p><b>Radio control, differential drive, exponential:</b> An R/C servo signal is connected to terminals S1 and S2. The Sabertooth will autocalibrate the center and endpoints of the signal.</p>  |
|    | <p><b>Simplified Serial, 38400 Baud:</b> A TTL level 8N1 serial data stream is connected to terminal S1. Control is with single byte commands.<br/>Motor 1: 1 is full reverse, 64 is stop and 127 is full forward.<br/>Motor 2: 128 is full reverse, 192 is stop and 255 is full forward.</p> |
|  | <p><b>Packetized Serial, address 128:</b> A TTL level 8N1 serial data stream is connected to terminal S1. Control is via a multi-byte packet.</p>   |
|  | <p><b>Lithium cutoff option:</b> 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.</p>   |

Sabertooth features many more operating modes and options not shown here. For the full manual, please visit <http://www.dimensionengineering.com/>