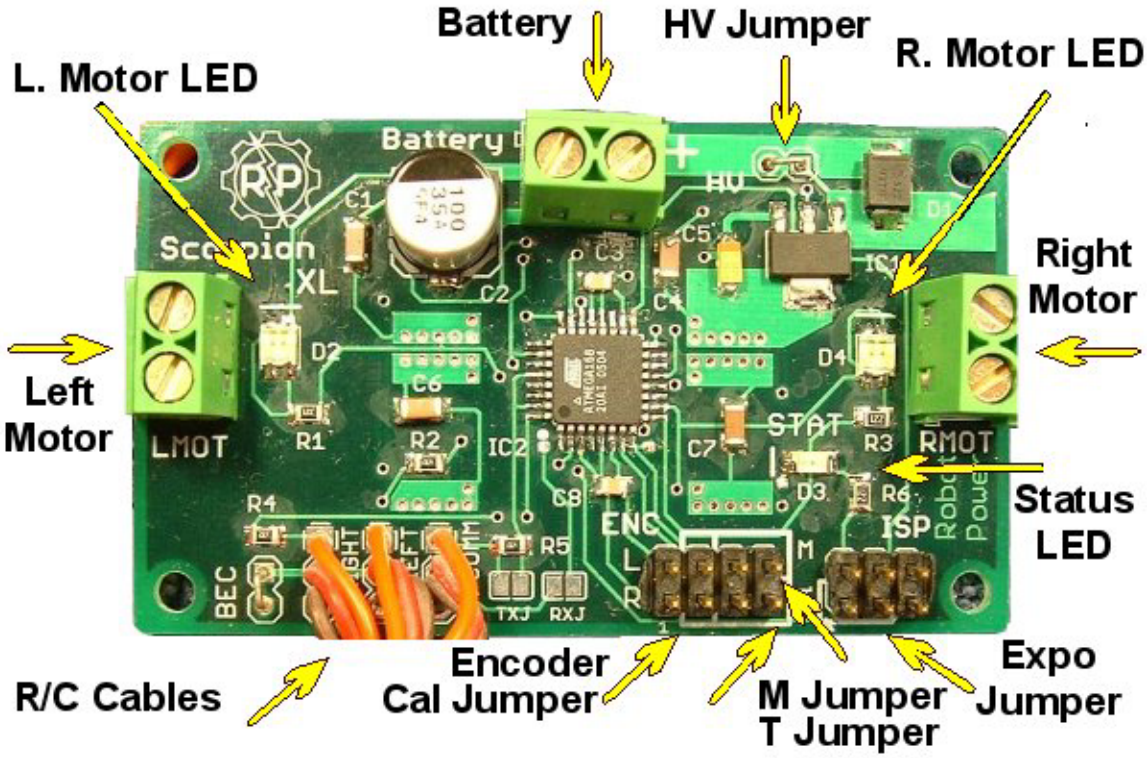
Scorpion XL

Quick Start Guide

Thank you for purchasing the Robot Power Scorpion XL motor control. This guide is a brief how-to on setting the operating mode of the Scorpion. It is not intended to replace the complete Scorpion XL User Manual available from http://www.robot-power.com/downloads



R/C Connections

The Scorpion XL comes equipped with 3 R/C leads marked L, R, and F (Left/Right/Flip) on the plastic connector ends. These should be attached to your R/C receiver or signal source just like a normal R/C servo. In a mixed mode (see below) the Right R/C lead should be connected to the steering channel and the Left channel to the throttle. The Flip control may be connected to either an R/C channel or a gravity switch inside the robot. See the User manual for details.

BEC

The Battery Eliminator Circuit is used to supply 5V to the R/C receiver. The Scorpion XL comes from the factory with this enabled. To disable the BEC simply clip the wire jumper located above the R/C wires on the circuit board. We recommend a single cut and bending the wires apart to allow the BEC to be easily re-connected later if desired.

Mode Setting

The operating modes of the Scorpion XL are as follows:

	Mode	M Jumper	T Jumper	R/C Cables
1	Mix	OFF	OFF	Left & Right required
2	Mirror/Mix Right	OFF	ON	Left & Right required
3	Mirror/Mix Left	ON	OFF	Left & Right required
4	Tank	ON	ON	Left & Right attached
5	Mirror no mix	ON	ON	Left only or Right only

Detection of the operating mode is done at startup. If a mode is selected that requires both Left and Right R/C channels the unit will remain in radio detection mode until signals are received on both Left and Right channels. Note, the behavior of the Scorpion XL in Mode 4/5 depends on which R/C channels are connected. The mode jumpers are located on the male header on the opposite side of the unit from the R/C wires. Small white lines and letters on the PCB show were the jumpers are placed. The Scorpion XL ships from the factory with the jumpers attached to one pin of the header. These may fall off in a high-vibration environment so jumpers that are intended to be OFF should be removed and stored in a location where they won't be lost.

Exponential Steering

A jumper may be placed on the indicated pins on the ISP header to select exponential steering response. This mode gives a wide gentle dead band around the center point and rapidly increases in response at the ends of stick travel. Many drivers using hand-held radios prefer this mode as it is less sensitive near the center point which makes it easier to drive straight ahead and yet still allows rapid turns or spinning in place if needed. At Robot Power we always leave this jumper on when driving a "skid steer" drive configuration.

HV Jumper

The Scorpion XL is equipped with a jumper labled HV. This is used when the battery voltage is above 16V. If the rated battery voltage is above 16V clip this wire. Reconnect to use with a lower voltage battery.

Radio Calibration

Different radio systems have slightly different center points and travel ranges. To adjust the Scorpion XL to your radio a jumper is located on the ENC header on the circuit board to activate the radio calibration function. To calibrate the Scorpion XL to your radio systems set all your trims to center and place a jumper on the two pins indicated in the

image above. The Status LED will blink rapidly during calibration. Move the radio controls to their full extent several times. When finished center the controls and remove the jumper. The Scorpion XL is now calibrated. You can verify proper calibration by observing the motor LEDs. Both should be off with the controls centered. We recommend you disconnect any motors from the Scorpion XL during calibration.

For more information or support

For more details on setting up and operating your Scorpion XL please read the full User Manual available from the Robot Power Web site.

Thanks again for your purchase of a Scorpion XL. Please feel free to contact us with questions or problems via e-mail or phone. We're proud of our controllers and are happy to provide the support you need to make you a happy user.

The Robot Power Team