Sidewinder

Quick Start Guide

Thank you for purchasing the Robot Power Sidewinder motor control. This guide is a brief how-to on setting the operating mode of the Sidewinder and setting the current limit and slew limit controls. For detailed assistance beyond the scope of this document contact Robot Power at support@robotpower.com

Power Connections

The high current battery and motor leads may be attached to the Sidewinder by either soldering or by bolting with ring terminals etc. We strongly recommend soldering the wires to the Sidewinder circuit board using a heavy soldering iron. If ring terminals are used the back plate may need to be modified in order to route the wires out of the unit. If you choose to use bolts to attach the high current wires we strongly recommend brass bolts, brass washers on the top and bottom of the circuit board and nylon or metal lock-nuts to secure the connection. Excessive tightening may crush the fiberglass circuit board and cause shorts and failures.

Warning: In no case should star or split lock washers be used against the circuit board. They will cut through the layers of the circuit board and cause a short and total destruction of the unit. Also excessive tightening or twisting force may crush the fiberglass of the circuit board and cause shorts and failure of the unit. We strongly recommend using the pre-soldered #11 AWG wire for the high-current connections with connectors located outside the unit.

R/C Connections

The Sidewinder 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.

R/C Blink Codes

The Sidewinder indicates the status of the R/C signal by various blink patterns on the Status LED. Here are the blink codes:

Solid – all signals good, motors enabled
Slow blink – searching for required radio channels especially at startup

Fast blink – R/C signal lost or pulses out of legal range
Very fast blink – Calibrating radio signals (after Cal button pressed see below)

BEC

The Battery Eliminator Circuit is used to supply 5V to the R/C receiver. The Sidewinder 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 bend the wires apart to allow the BEC to be re-connected later if desired.

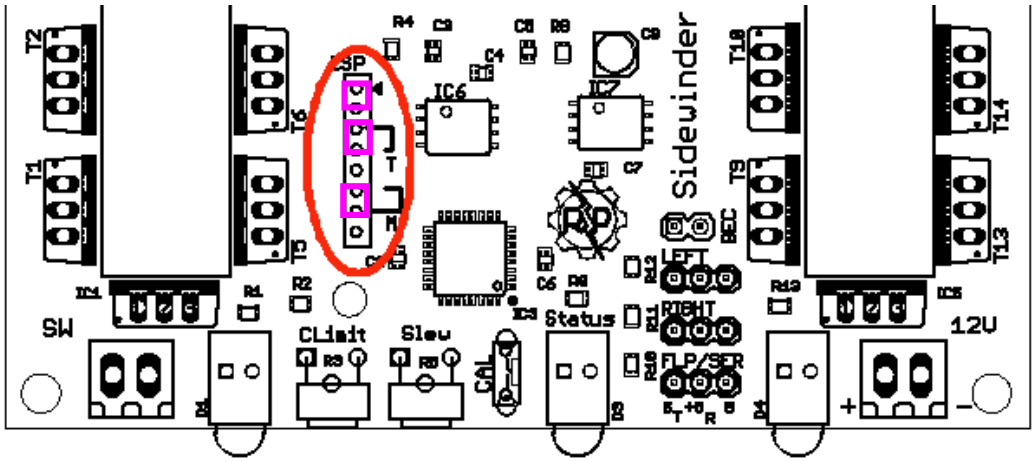
Brake vs Coast

Normally the Sidewinder uses dynamic braking to rapidly slow the motors when a zero speed is commanded. Shorting the motor leads through the Sidewinder MOSFETs does this. If a gentler slowing is desired the Coast jumper may be placed on the first two pins of the ISP header shown below. The Coast jumper is located by the white triangle on the circuit board. At zero commanded speed with the Coast jumper in place all MOSFETs are turned off and the motor is slowed only by friction in the system.

Mode Setting

The operating modes of the Sidewinder 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 Sidewinder in Mode 4/5 depends on which R/C channels are connected. The mode

jumpers are located inside the case on the 2mm 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 Sidewinder 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.

Setting the Current Limit

The current limit is set using the adjustment control marked CL on the front panel of the Sidewinder. Turning the control in the direction of the arrow increases the maximum allowed current. The label on the enclosure shows an arrow in this direction. The Sidewinder is shipped with a label over the opening to prevent dirt from entering the case through this hole. However, you may cut away this label to adjust the current limit while the unit is running or remove the front panel and adjust the limit then reattach when it is correct.

Setting the Slew Limit

The slew limit control is used to slow down the rate of change of speeds commanded of the motors. A "high" or "fast" slew means the commanded speed will change quickly. Maximum slew speed is commanded by turning the control all the way in the direction of the arrow. As with the current limit control this may be adjusted while the Sidewinder is operating to tune the response of the system.

Radio Calibration

Different radio systems have slightly different center points and travel ranges. To adjust the Sidewinder to your radio a small button is located near the Status LED on the circuit board to activate the radio calibration function. To calibrate the Sidewinder to your radio systems set all your trims to center and press and hold the button for at least 3 seconds (use a small screwdriver to reach into the unit and depress the button) while the radio is transmitting. The Status LED will blink rapidly during calibration. Move the radio controls to their full extent several times. When finished center the controls and press the button again. The Sidewinder is now calibrated. You can verify proper calibration by observing the motor LEDs. Both should be off with the controls centered and to go full brightness when the sticks are moved to maximum. We recommend you disconnect any motors from the Sidewinder during calibration.

For more information or support

For more details on setting up and operating your Sidewinder please contact Robot Power by using the contact information from our Web site.

Thanks again for your purchase of a Sidewinder. 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