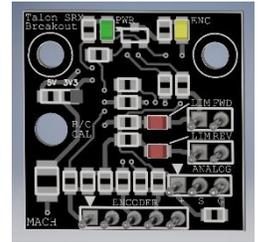


Talon SRX Universal Breakout Board (TSUB-2 / AM-3281)

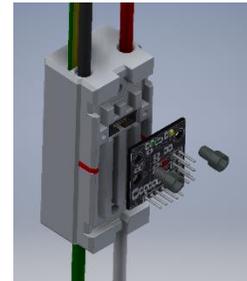


User Guide

Thanks for purchasing the TSUB breakout board! Using this device, you can take advantage of all the I/O found on a Talon SRX DC motor controller. This includes any combination of: One Encoder, Two Limit Switches, and One Analog Input/Pot. The TSUB board also features LEDs for all digital inputs, allowing rapid system debugging in the field. The board includes 0.1" Header Pins for simple, easily-replaceable, connection of all peripherals. All I/O are also protected with current-limiting resistors and a solid-state fuse making the I/O on the TSUB resistant to most short circuit conditions.

Installation:

1. Remove screws and cover from Talon SRX I/O connector
2. Carefully install TSUB board into this connector. Make sure to align it properly with the connector on the TSUB (you can use the mounting holes as a guide).
3. Use the screws from the Talon cover to mount the TSUB board.



Notes:

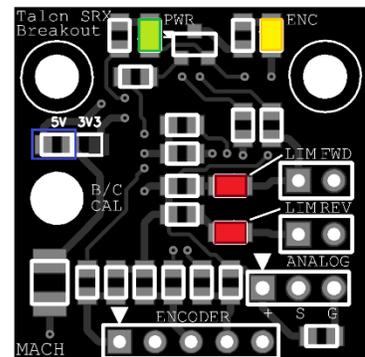
- Without spacers, the TSUB board does not always sit completely flat on the Talon surface. Do not over-tighten the screws in this case, as it may put excessive stress on the PCB. Small washers such as [McMaster PN 90295A359](http://www.mcmaster.com/90295A359) work well to keep the TSUB board from resting on the Talon and sitting at an angle. Reliable operation has been demonstrated with or without spacers.
- The B/C Cal button on the Talon can be pressed using a paper-clip or similar object through the access hole in the TSUB board. On some models, you may have to insert the clip at an angle to reach the button.

Pinout:

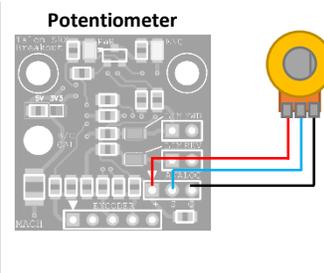
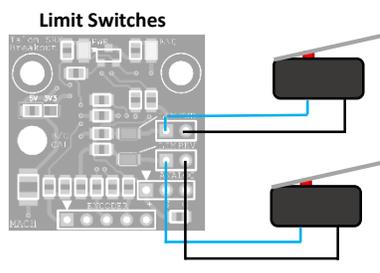
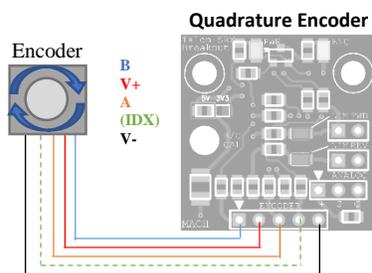
<u>LIM FWD/REV</u>	
1. Signal In	
2. V-	
<u>ANALOG</u>	
1. V+	
2. Signal In*	
3. V-	
*For 5V, see note on analog scaling in advanced section	

<u>ENCODER</u>
1. CHB
2. V+
3. CHA
4. IDX
5. V-

<u>LEDs</u>
1. GRN – Power
2. YEL – Encoder Pulse
3. RED – Limit Closed
<u>5V/3V3 (V+ Select)</u>
• Move 0Ω Resistor to select voltage (5V default)



Examples:

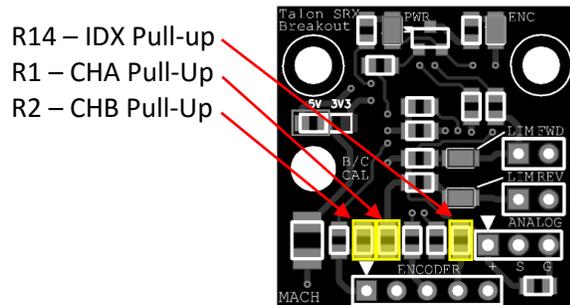


Advanced Guide

The Talon SRX Breakout board was designed to be as universal as possible, but not all applications could be accommodated by default. Below are some possible modifications, and when they might be necessary.

Pull-Up Resistors

Many encoders do not require pull-up resistors (including the E4T series from US Digital), however, if using one that does, these resistors can be soldered onto the board as indicated below. Check the encoder datasheet for the correct value, otherwise 10kΩ (0805 size) will typically be a good choice.



Analog Input Scaling

I/O on the Talon SRX Breakout can be set for 5V or 3.3V as required, with 5V being default. However, the Analog Input to the Talon can only read up to 3.3V. If a 5V sensor is used (such as MA3 Absolute Encoder), resistors must be changed to read the sensor's full scale output. The recommended change is to solder a 43.2kΩ (1% 0805) resistor into C2, and replace R6 with a 22.1kΩ (1% 0805). [Example 22.1k](#). [Example 43.2k](#).

Note: Revision 3 (TSUB-3) boards will ship with this change already applied.

