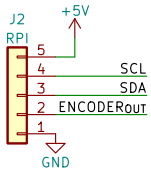
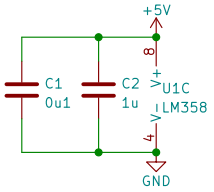
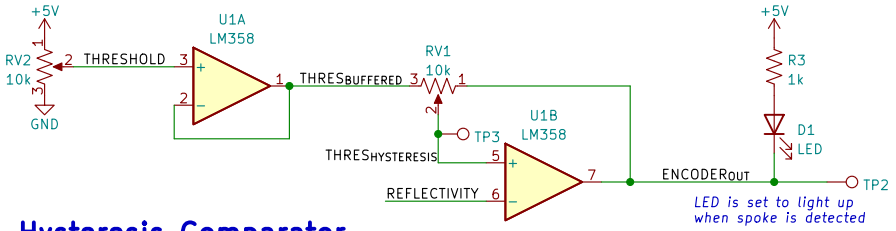


Main

Provides power from main TITAN board.
Returns data from sensors over I2C (temp.)
or as a 5V digital signal (encoder).

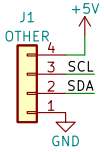




Hysteresis Comparator

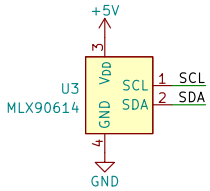
Two stage op-amp circuit. The threshold voltage is buffered to prevent loading effects from the hysteresis division that follows. Hysteresis is used to prevent spurrious switching near the threshold.

To set the threshold, set the hysteresis potentiometer to entirely favour the threshold value (short between pins 2 and 3 on RV1) before probing TP3 and adjusting the threshold with RV2. Once that is set gradually adjust, RV1 to introduce the desired level of hysteresis.



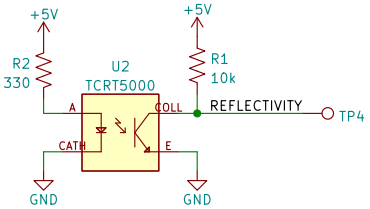
Other Wheel

Header to provide the possibility to daisy chain the I2C lines to the other wheel if I2C is not split at the main board.



Brake Temperature

Uses IR to measure the temperature of the brake disk.
Communicates over I2C to the main TITAN board.



Optical Encoder

Emits IR with an LED which is then reflected and picked up by a phototransistor that pulls down a line accordingly.

Thus at full reflection (presense), line is at GND

Ground for reference when using test points

Mounting holes are mounted 21mm apart along the center of the board (10mm from bottom/top, 13.5mm in from the sides)

Daughter board to collect wheel data in TITAN
Collects wheel rotation count and period from brake spokes
Also collects brake disk temperature without contact
Mounts within wheel braket by brake

Title: TITAN Wheel Sensor Board		
HPVDT	Date: 2022-08-16	**Rev: 1.1**
KiCad E.D.A. kicad 6.0.2+dfsg-1	Size: USLetter	Sheet: 1/1