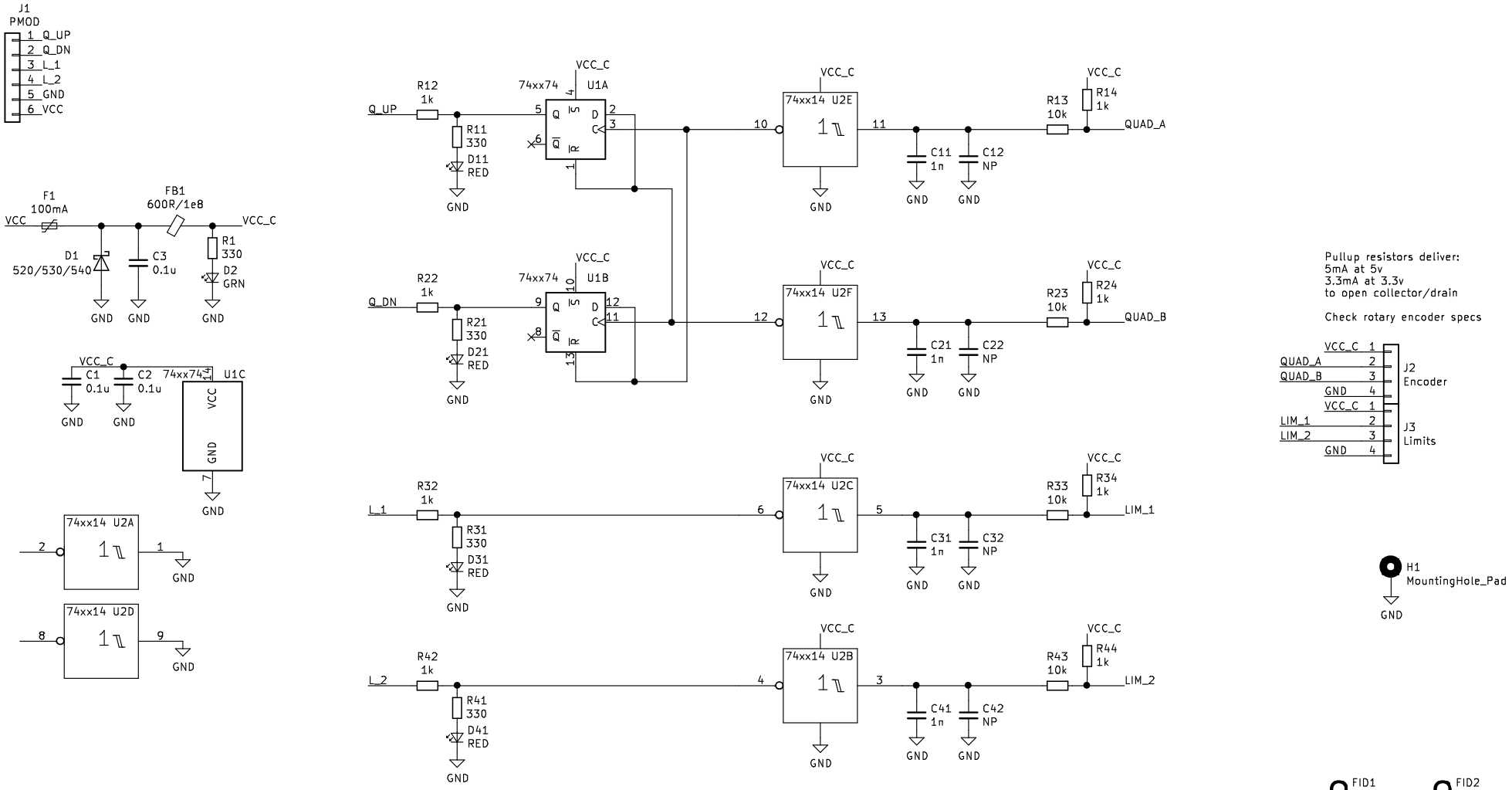

NOTES

This module provides a quadrature decoder for use with quadrature encoders that may be used in robotics or motion control applications.
The outputs "UP" and "DN" can be used to increment or decrement a counter and are noise/bounce free.
The period between pulses gives the speed of operation, and the difference in counts gives the relative position with respect to an initial state at power up.

The maximum usable input frequency to any of the lines using an ideal 50% duty cycle 0 to 5V square wave was determined to be 50kHz.
If noise causes problems, the cutoff frequency of this filter can be lowered by adding capacitance to Cx2 (currently Not Populated).
Alternatively, if the required frequency of operation must be raised, it may be necessary to remove these capacitors.
Propagation delay of the state transition across low pass filter and Schmitt trigger was determined to be 4–13uS.

74 series CMOS families suitable for 5v/3.3v operation, with sufficient drive strength include 74LV and 74AC.

Please visit the github repository for application examples.

github.com/cpgmoore/emods/axis-encoder

REV 21/06/19 – Corrections after testing, panelised batch for automated assembly
REV 10/06/19 – Initial batch for manufacture

cpgmoore

Sheet: /
File: axis-encoder.sch

Title: emods/axis-encoder

Size: A4	Date: 21/06/19	**Rev: 21/06/19**
KiCad E.D.A. kicad 5.1.2-f72e74a84ubuntu18.04.1		Id: 1/1