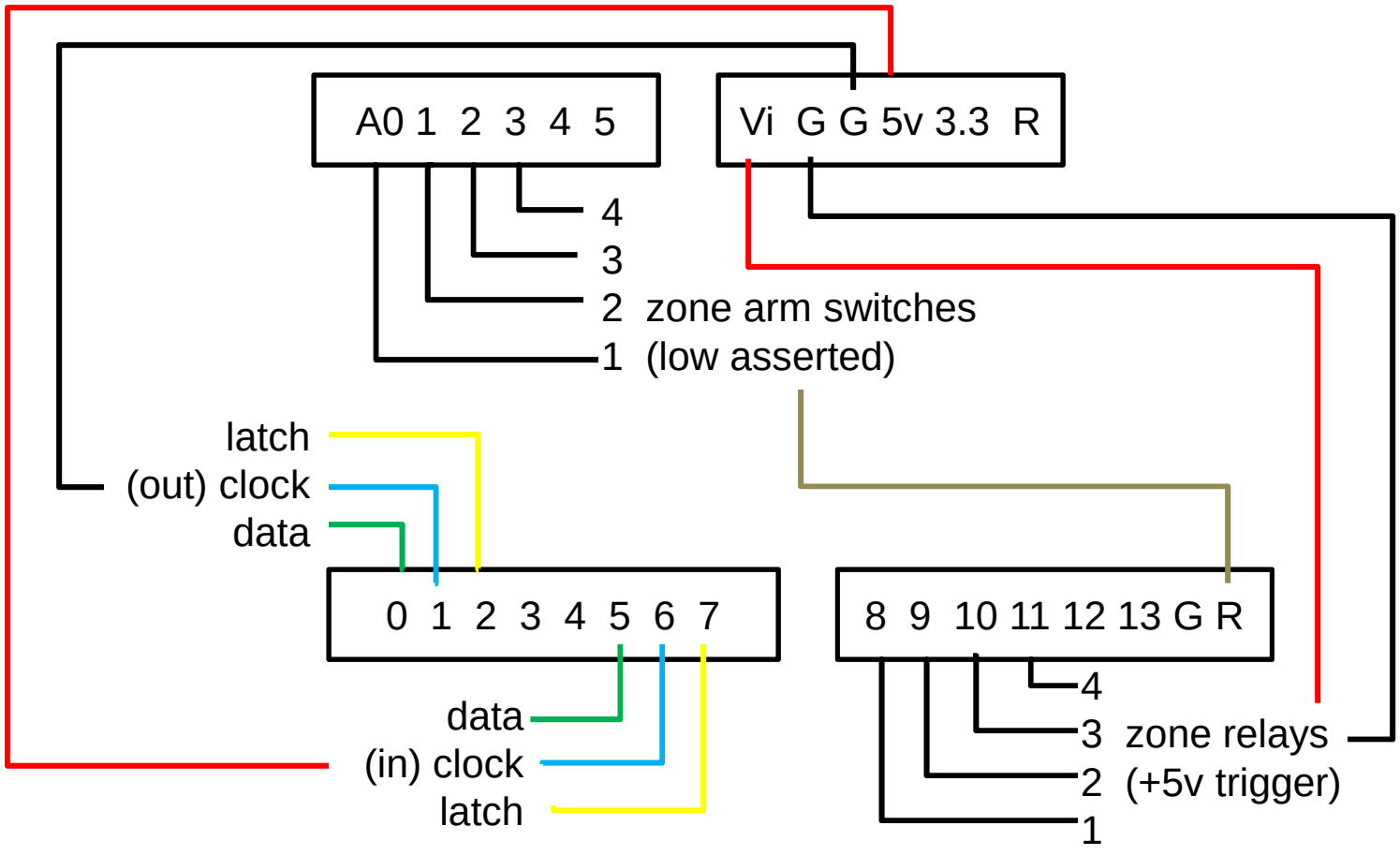
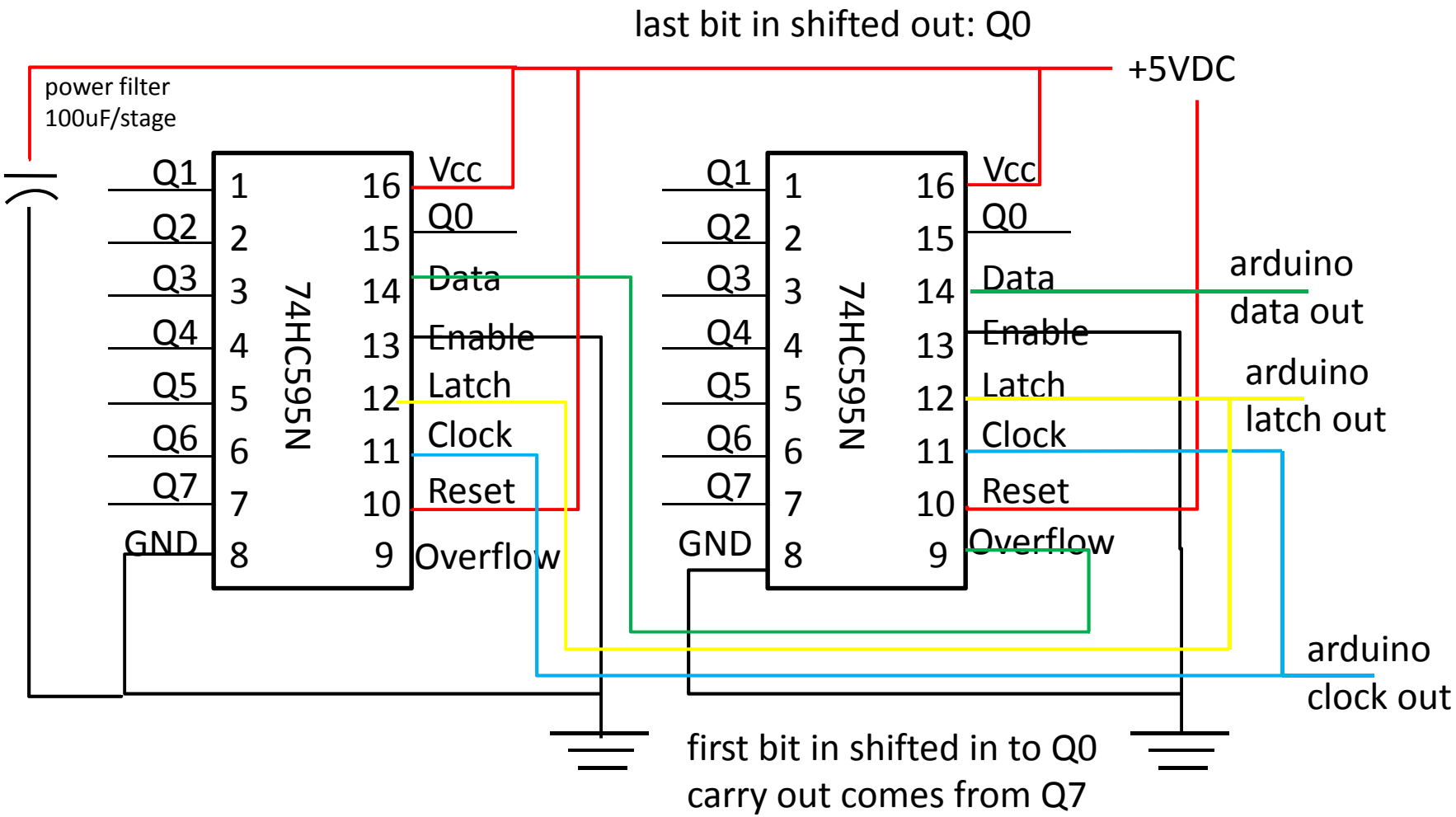
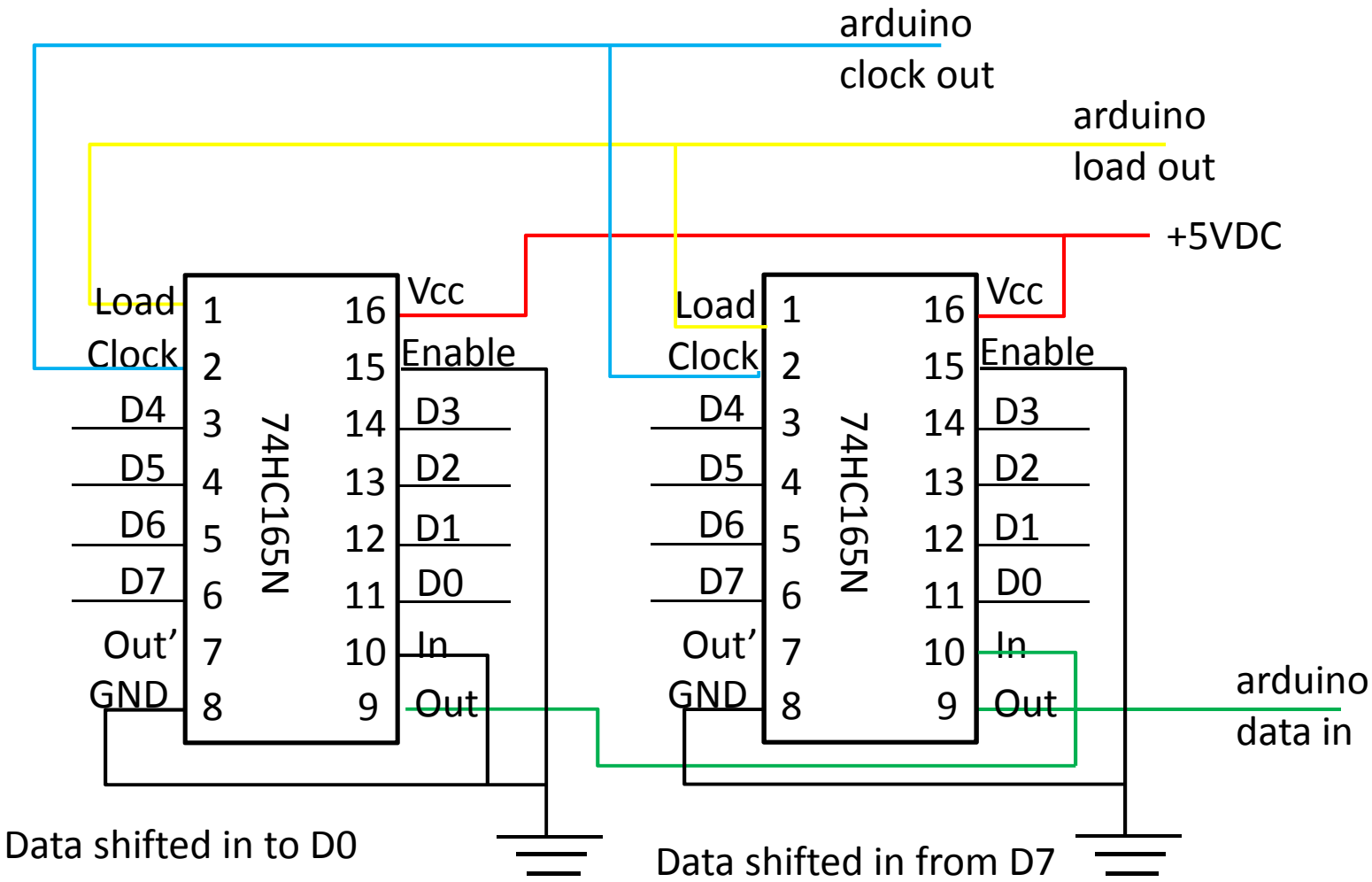
External Arduino Connections



74HC595 Output Shift Cascade

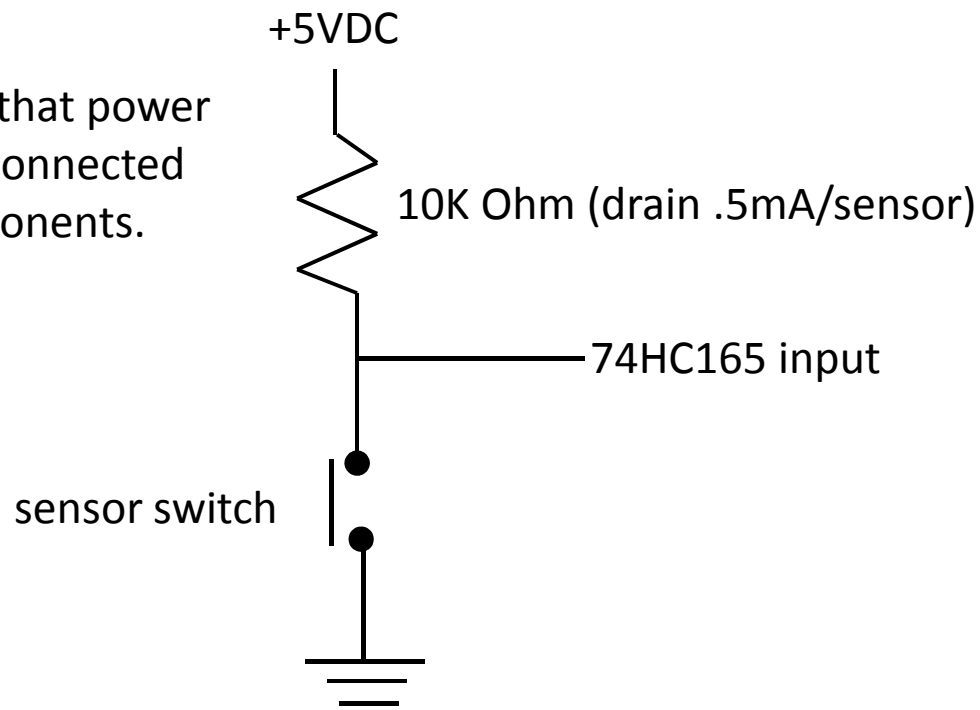


74HC165 Input Shift Cascade

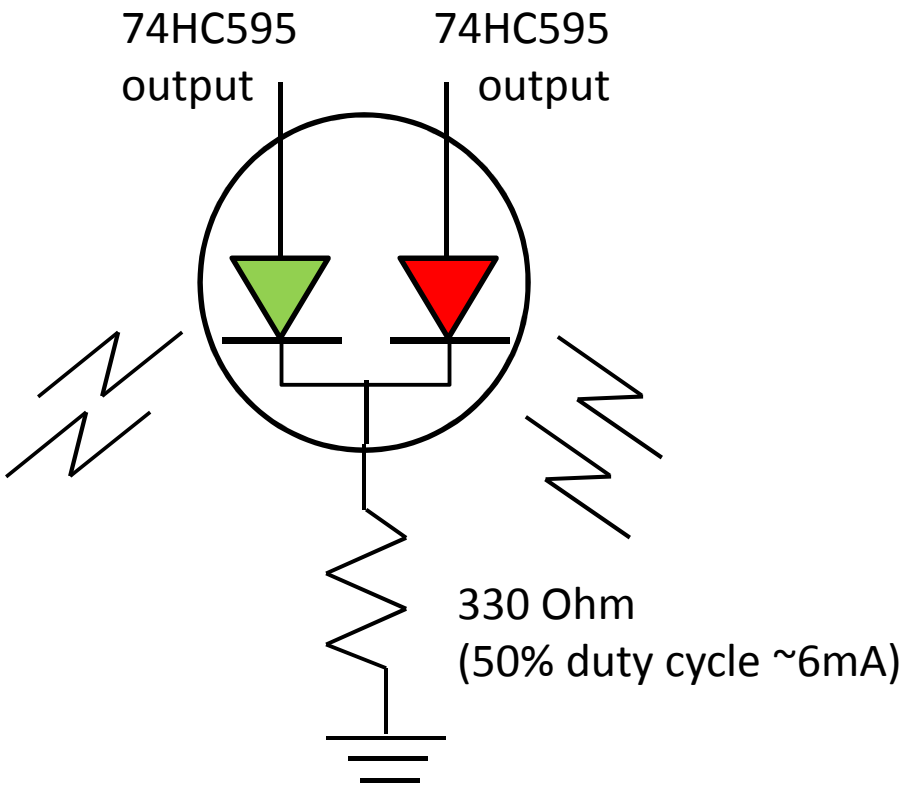


Sensor Input Signals

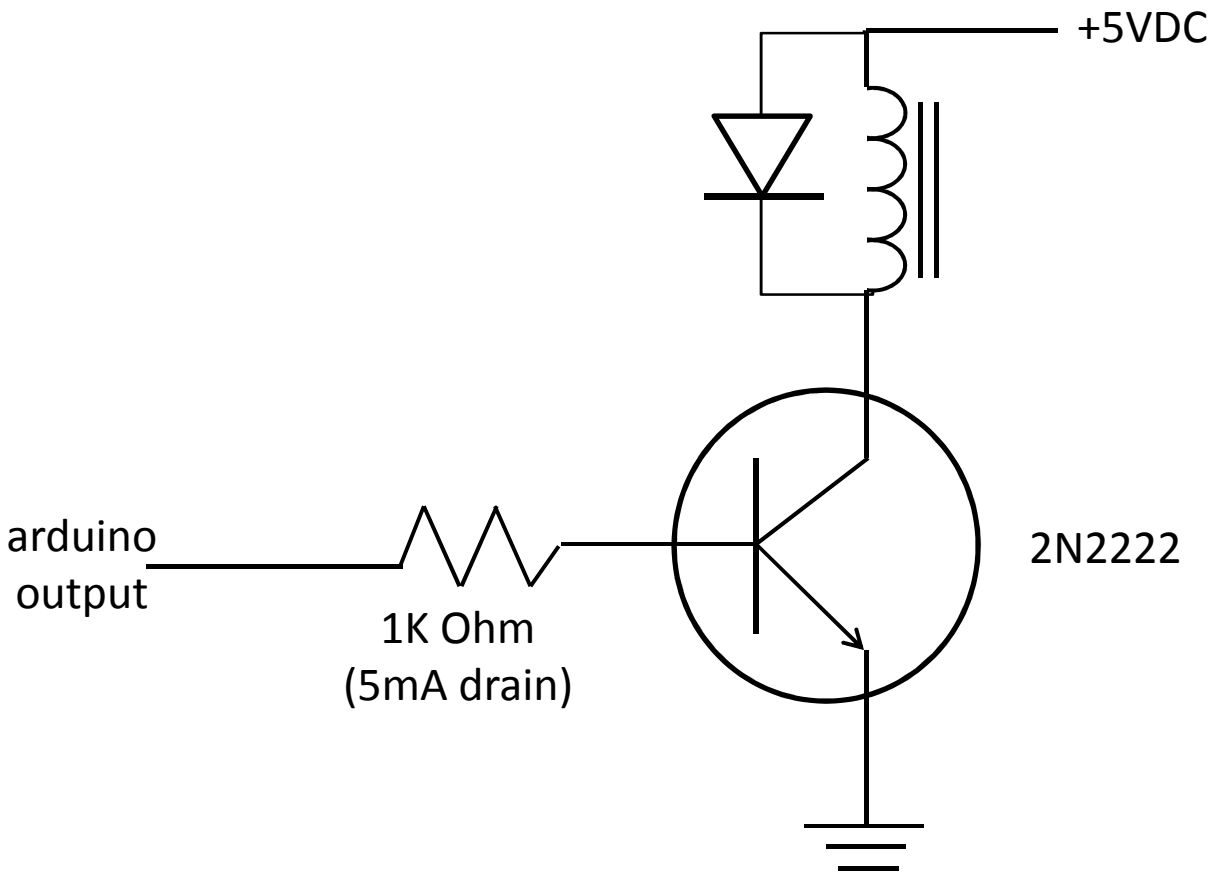
Using pull-up ensures that power will never be directly connected to any off-board components.



Tri-Color LED Drivers
(common cathode)

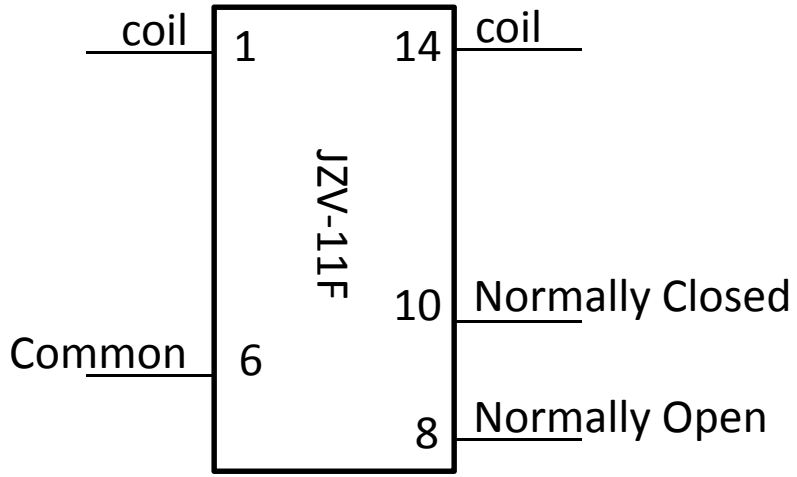


Relay Output Drivers



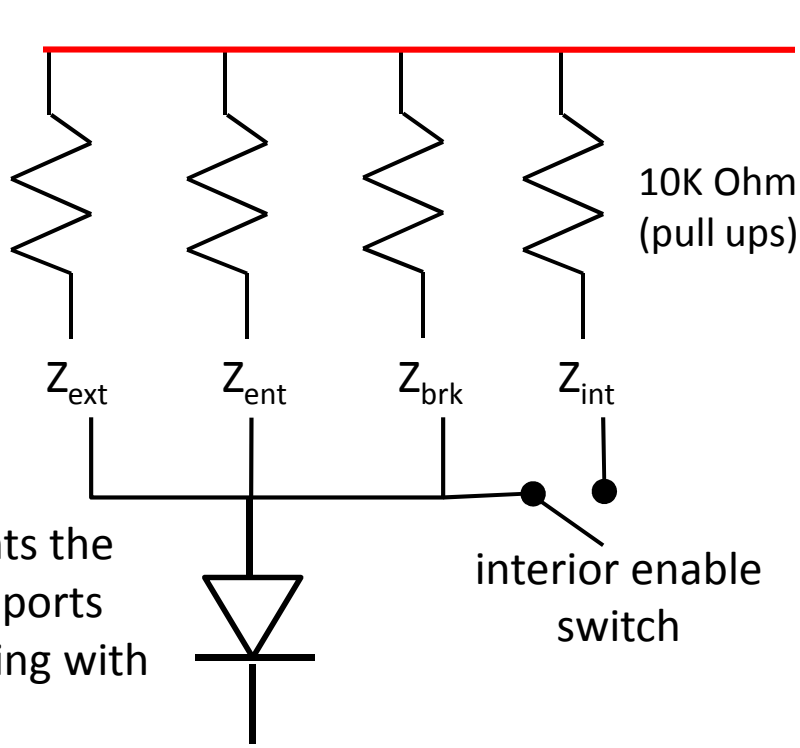
JZV-11F 5VDC SPDT Relay

As nearly as I can tell, this is not a polarized relay and does not care which side of the coil is positive.



Coil resistance:	320 ohms
Minimum current:	10mA
Expected current:	16mA @5VDC

Zone Arm Control



Using the system armed LED indicator to arm the s/w in the Arduino may seem obtuse, but it eliminates any mode confusion between the Arduino and the external alarm control.

Sensor Characteristics

Switch Type	Sense	Transitions
magnetic reed switch	Normally Open (with no magnet present)	clean less than1ms
Mercury window sensor	orientation dependent	bump signals last 20-200ms

Conclusion: (1) no debounce seems to be required,
(2) but we may want signal stretching.