Heating Controller Simulation Demo Circuit Aaron Lockton - July 2020 - v1.0 NOTE to simulate cooler connect 5 V rail to K1 NC instead of NO $\,$ K1 QIANJI JQC-3F-(T73)-5VDC O S COIL. IC1 ULN2803A IN 1 OUT 1 IN 2 OUT 2 +/-5% 0.25W IN 3 OUT 3 IN 4 OUT 4 OUT 5 IN 5 13 IN 6 OUT 6 IN 7 OUT 7 IN 8 OUT 8 R2 7077587 100 Ohm GND COMMON FREE WHEELING DIODES NOTE LED1 and IC2 are physically co-located (touching) 40 39 IC2 DS18B20+ TO-92 IC3 DS18B20+ TO-92 38 37 35 LED1 L-7113GD 2.5 V Green L 8622989 33 31 29 V D O VDD DQ GND 27 25 23 22 21 20 19 1.8 17 16 15 1 4 13 GP I 017 12 1.1 10 9 V=IR - LED1 Vf=2.5 V so R2 drops 2.5 V giving If = 25 mA GPI04 7 GND 5 (abs. max value for max heating) 3 SBC1 Raspberry Pi Model B+ R1 7077726 4.7k +/-5% 0.25W raspi-temperature-controller