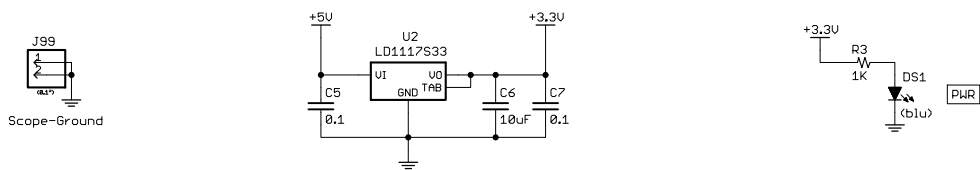
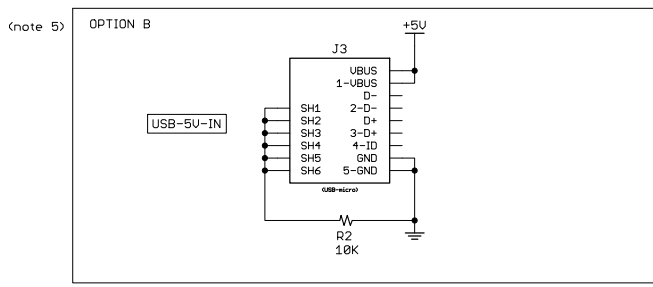
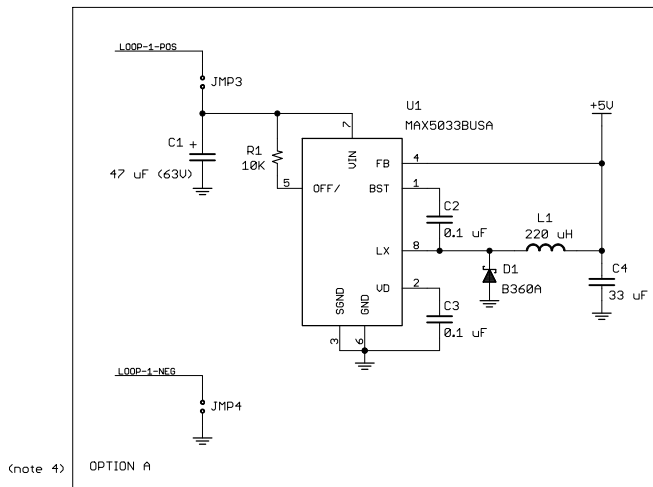
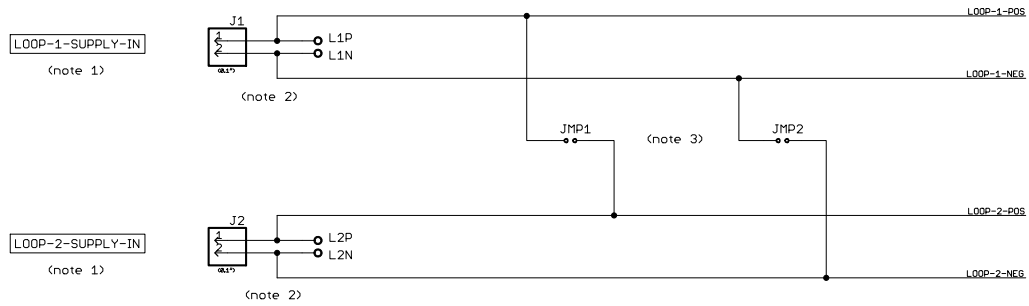



# SurLEE's BTTY System

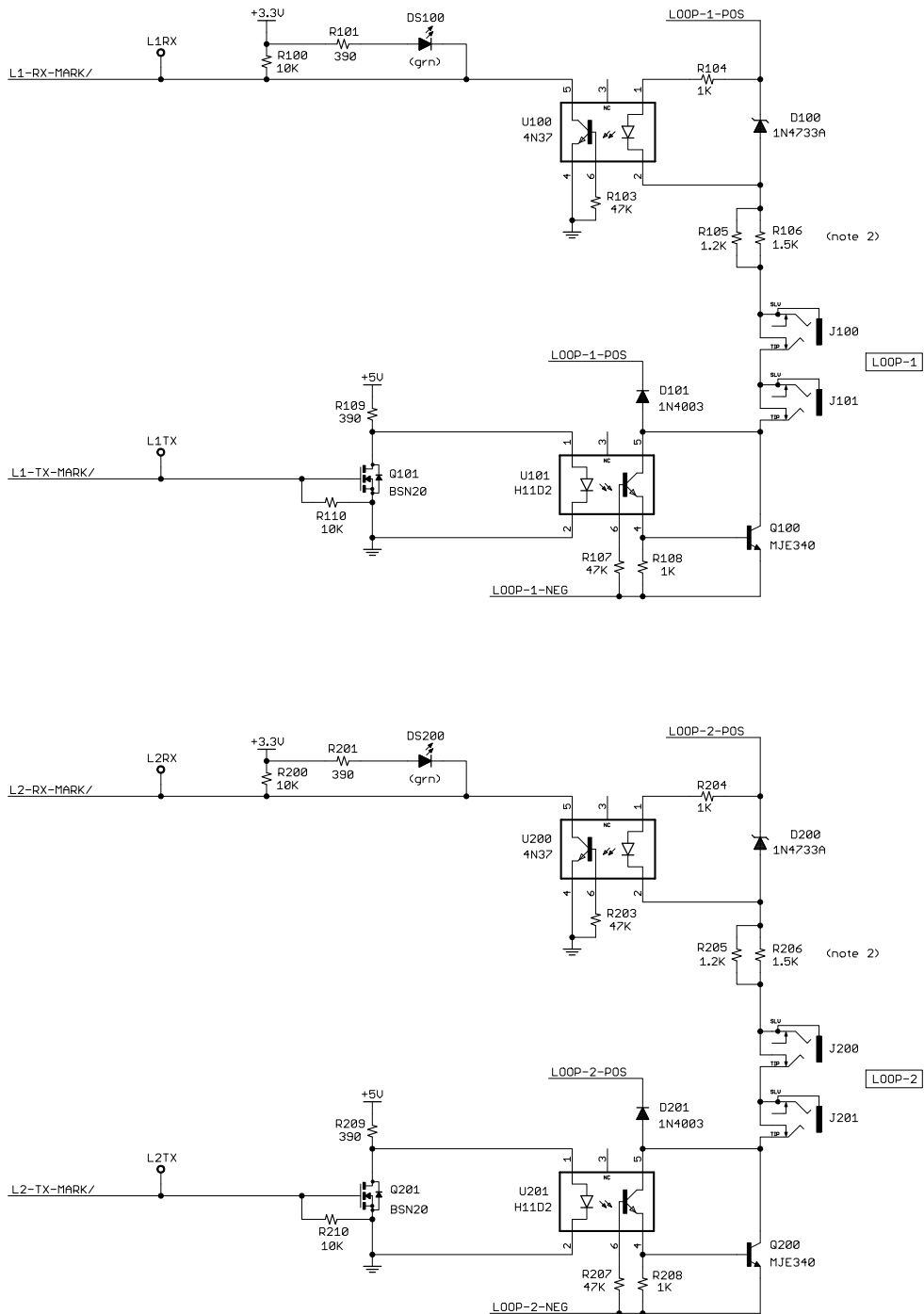


- Note 1: Loop supply of 48VDC is recommended -- see Note 4. Can use loop supply up to 120VDC maximum -- see Note 5.
- Note 2: For loop supply, use either polarized 0.1" header or wire pads.
- Note 3: Single loop supply can be used for both loops by installing JMP1 and JMP2.
- Note 4: OPTION-A: If using Loop-1 supply of 48V, can use buck regulator to generate 5V. Install JMP3, JMP4, U1, and related parts. Do not install OPTION-B parts.
- Note 5: OPTION-B: If Loop-1 supply is over 48V, use USB jack to provide 5V. Install J3 and R2. Do not install OPTION-A parts.

 SURLEE <span style="float: right;">for surlee electrical engineers everywhere</span>	
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# Loop 1 and Loop 2 Circuitry:

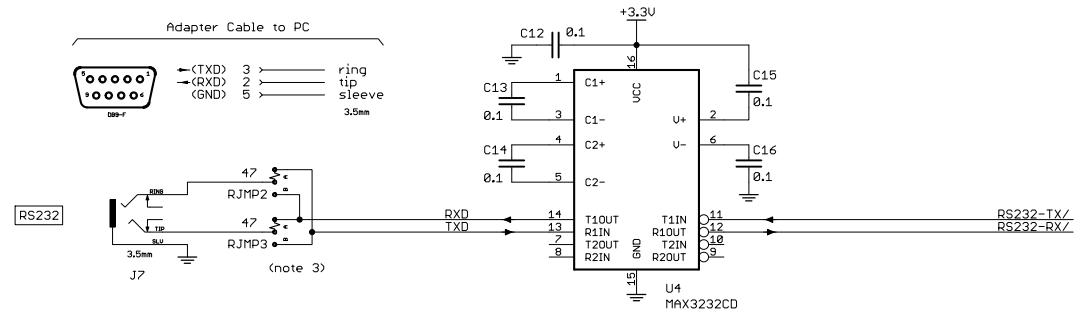
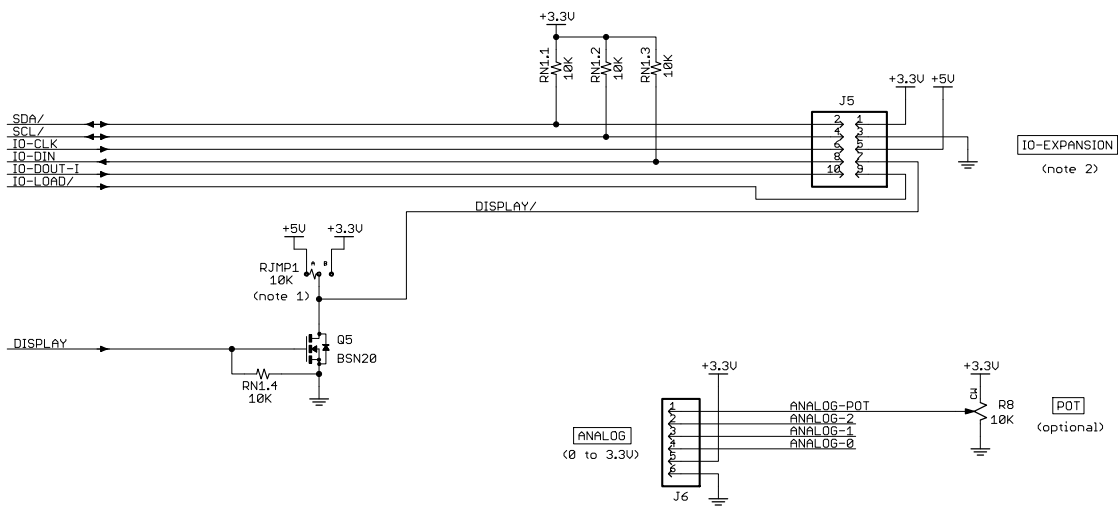
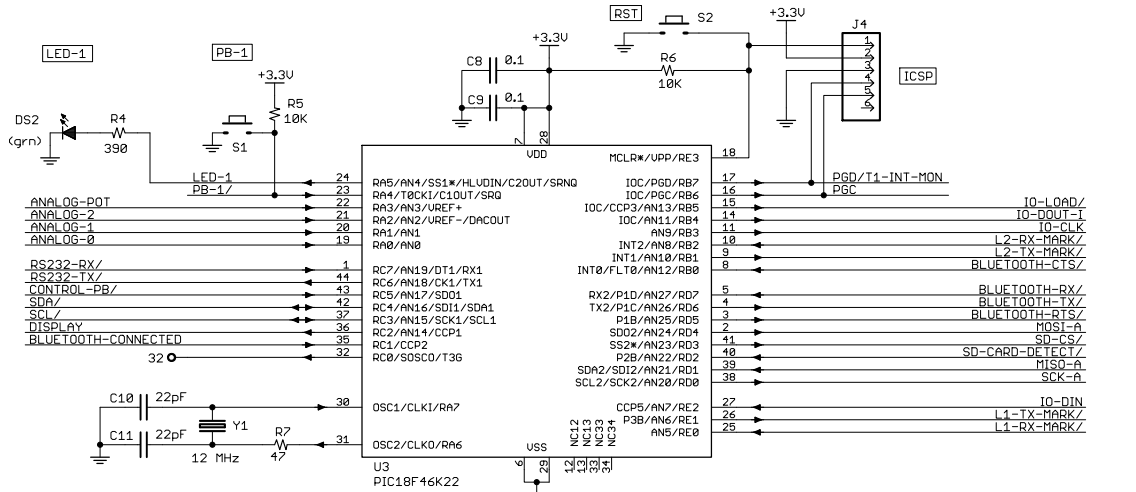
(note 1)



Note 1: For safe 48V loop supply, optoisolation not needed, but 4N37 provides level translation and H1102 allows loop supplies up to 120V, if desired.

Note 2: Voltage across current-limit resistors is about 6V less than loop supply. For 48V loop supply, can use two on-board 3W resistors. For >48V supplies, must use chassis-mount external resistor with heat sink and cooling air flow. 48V loop: use 3-watt 1.2K || 1.5K = 667-ohms for 63 mA (2.65W dissipated). 96V loop: use 10-watt chassis-mount 1.5K for 60 mA (5.4W dissipated). 120V loop: use 15-watt chassis-mount 1.8K for 63 mA (7.2W dissipated).

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Note 1: For RJMP1 pullup, use either 5V or 3.3V, or neither, as needed.

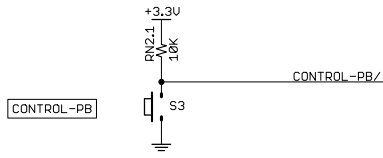
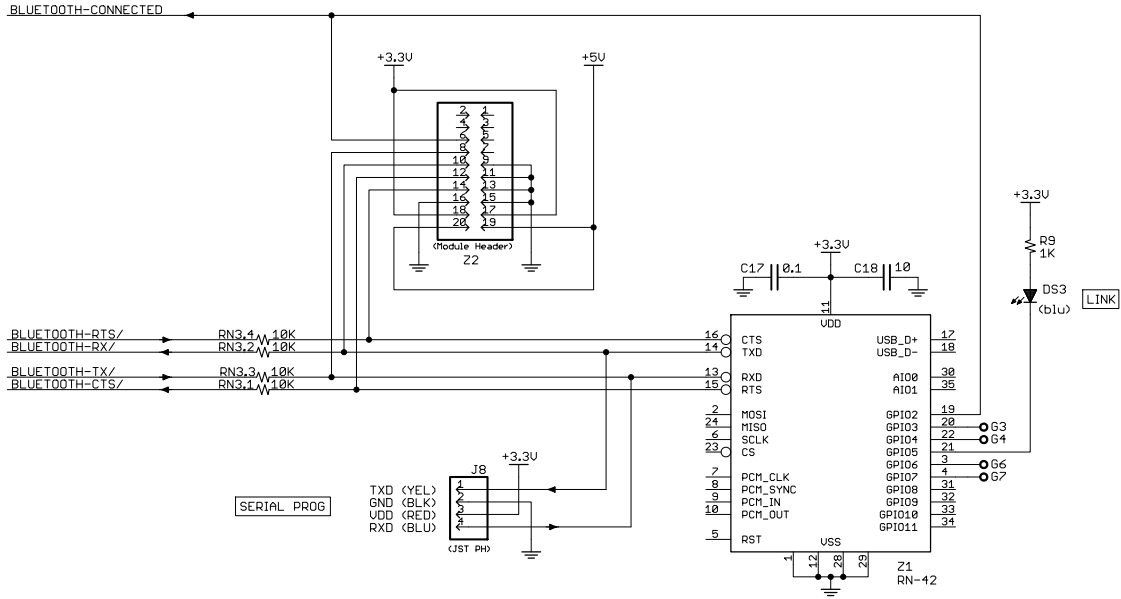
Note 2: IO-Exp is for chain of one or more series-connected 74x595 and/or 74x165. Use 74HC595 (or pricier 74LV595A) for byte output. Use 74LV165A for byte input (3.3V-powered; has 5V-tolerant inputs).  
 If only 74x595 in chain, IO sequence:  
 - Clock for 8/16... bits to shift data out  
 - Pulse LOAD/ low/high (strokes 74x595 on pos-edge)

If both 74x595 and 74x165 in chain, IO sequence:  
 - Pulse LOAD/ low/high (loads 74x165 when low)  
 - Clock for 8/16... bits to shift data out/in  
 - Pulse LOAD/ low/high (strokes 74x595 on pos-edge)

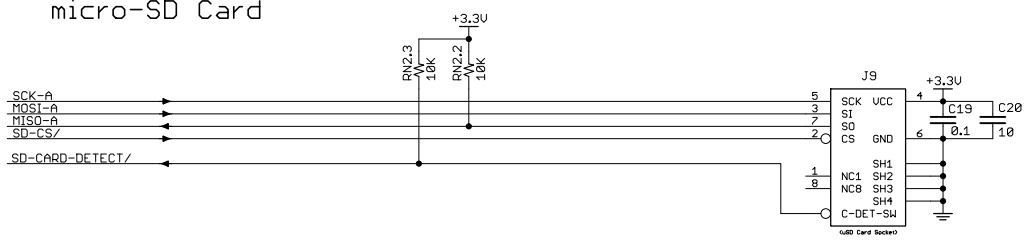
Can write magic number out/in to test loop (if loop closed)

Note 3: For adapter cable that swaps DB9-2 and 3, use RJMP2 and RJMP3 B positions.


# Bluetooth Interface



# micro-SD Card



RN2.4  
10K

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