ARC 78 Rev.1A

Compact Power Control Board Assembly Files

Astronomical Research Cameras Inc.

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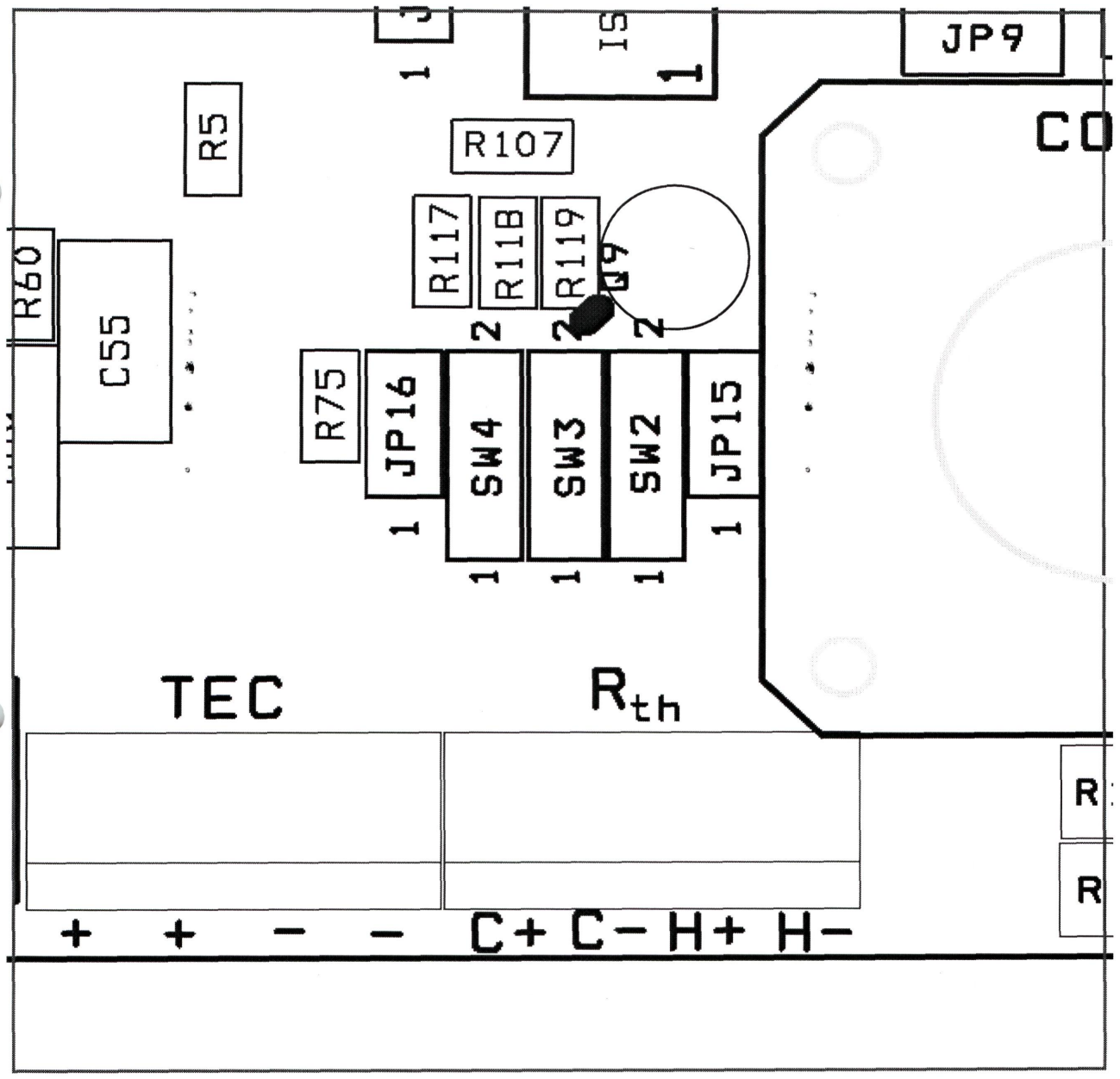
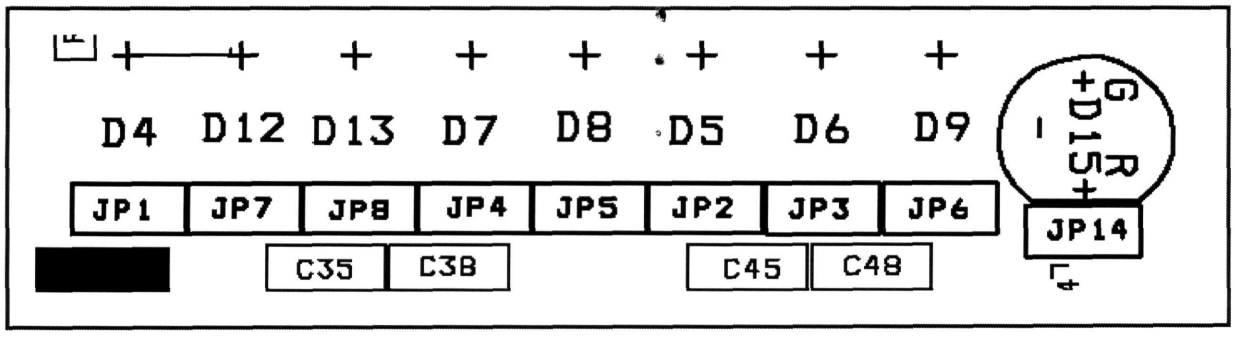
Temperature Sensor Jumps' Setting

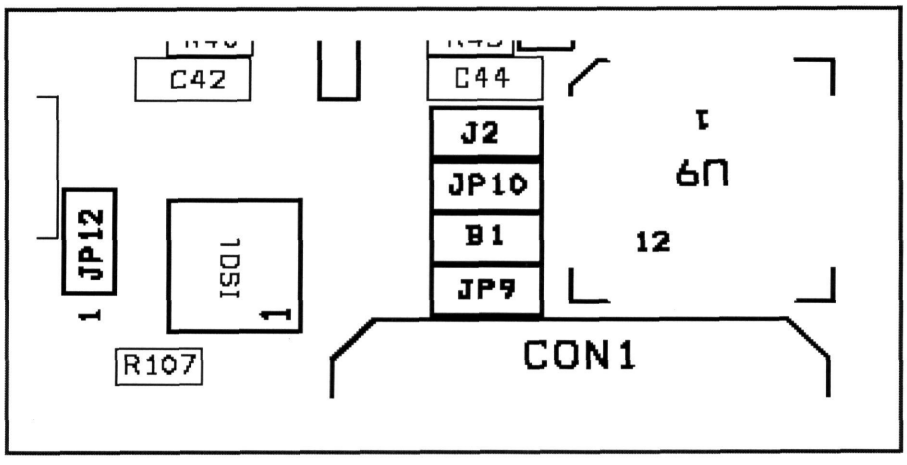
NO.	FUNCTION DESCRIPTION	SW2			SW3			SW4			JP15		JP16	
		1	3	2	1	3	2	1	3	2	1	2	1	2
1	Temperature Sensor:Thermistor	■	■			■	■		■	■				
2	Temperature Sensor:AD590		■	■		■	■		■	■			■	■
3	Temperature Sensor:Diode & MAX1979:Heater				■	■		■	■		■	■		



Description for Jumpers' Setting

Name	Description		Value	Default
JP1~8,JP14	LEDs' ON/OFF Jumpers	ON	Close	Close
		OFF	Open	
JP9	Power Control Selection	Remote	Close	Close
		Always-on	Open	
JP10	CCD/IR Bias Selection	CCD	Close	Close
		IR	Open	
JP12	TEC Control Selection	Remote	Open	Open
		Always-off	Close	
B1	System RESET	Asserted	Close	Open
		NOT Asserted	Open	
J2	Case temperature SW connecting jumper			





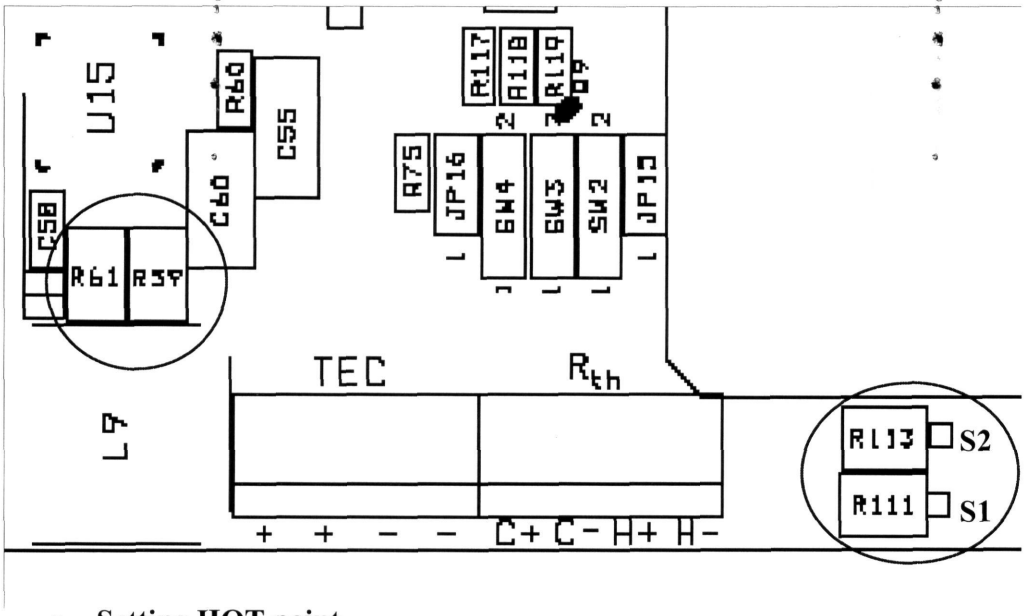
Description for the board initialization

1. **TEC output setting(R59&R61)**

   Two POTs, R59 and R61 are used to set the TEC output's current and voltage. R59 is for maximum output voltage while R61 for current. The default value is 3.3A when output voltage is less than 4V.
   Attach a 1Ω/25W resistor at TEC output and adjust the POTs clockwise to meet the above values with a multi-meter monitoring across the resistor.

2. **Temperature Alarming points setting(R111&R113)**

   R111 and R113 are POTs which are used to set the alarming points of the temperature in working CCD chamber.



- **Setting HOT point**
  Using multi-meter to monitoring the voltage at pad S1, adjust the R111 and let it be 3.76V output, which is corresponding to +40°C.
- **Setting COLD point**
  Using multi-meter to monitoring the voltage at pad S2, adjust the R113 and let it be 1.38V output, which is corresponding to -10°C.

CCD Alarming bits:

- **CCD_HOT (@A25) ---"1": Normal (the temperature is under +40°C).**
  "0": Alarming (the temperature is over +40°C).
- **CCD_COLD (@A26) ---"1": Normal (the temperature is under -10°C).**
  "0": Alarming (the temperature is over -10°C).

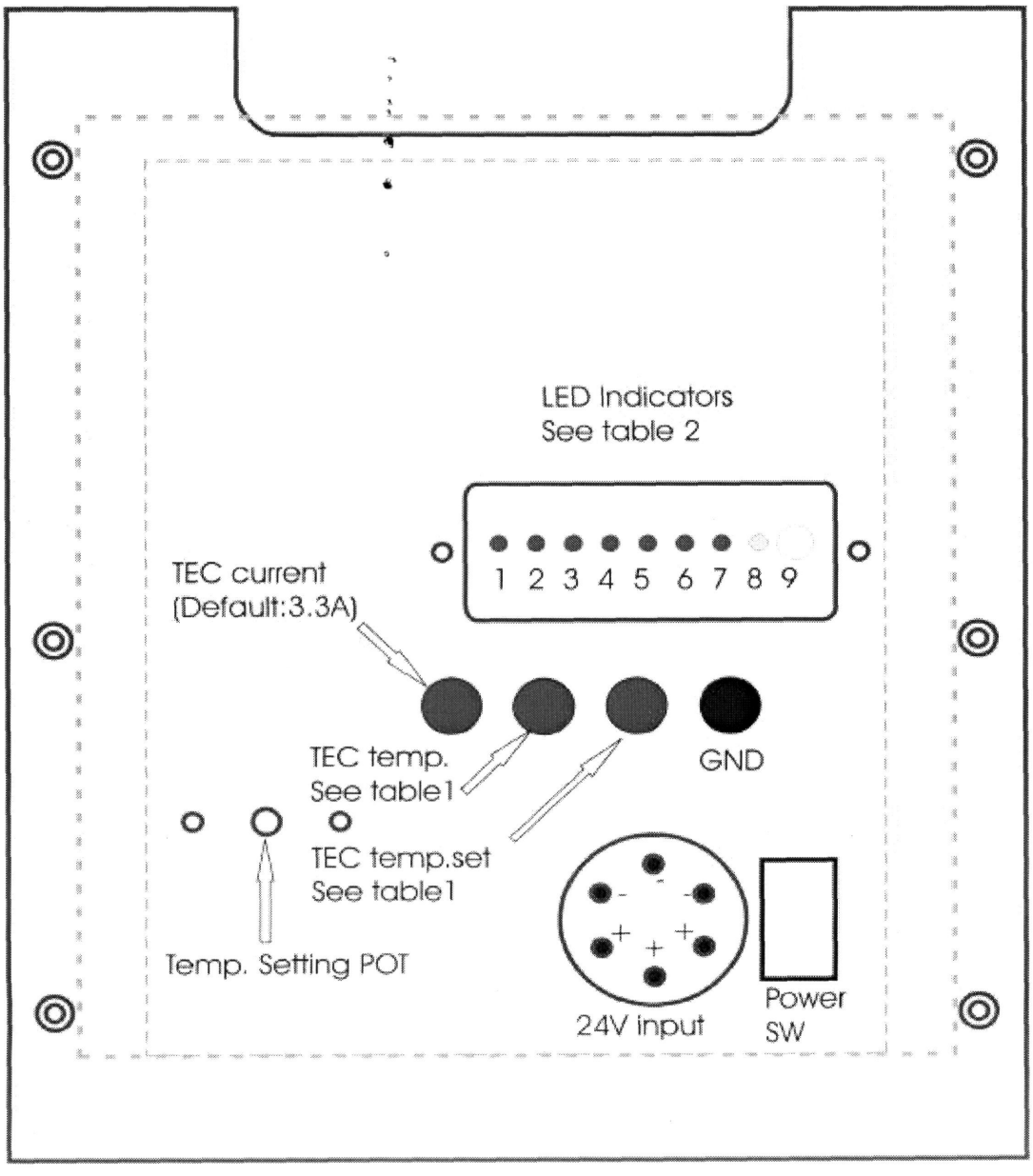
TEC control bit (@A27) ----"1": TEC is ON; "0": TEC is OFF.

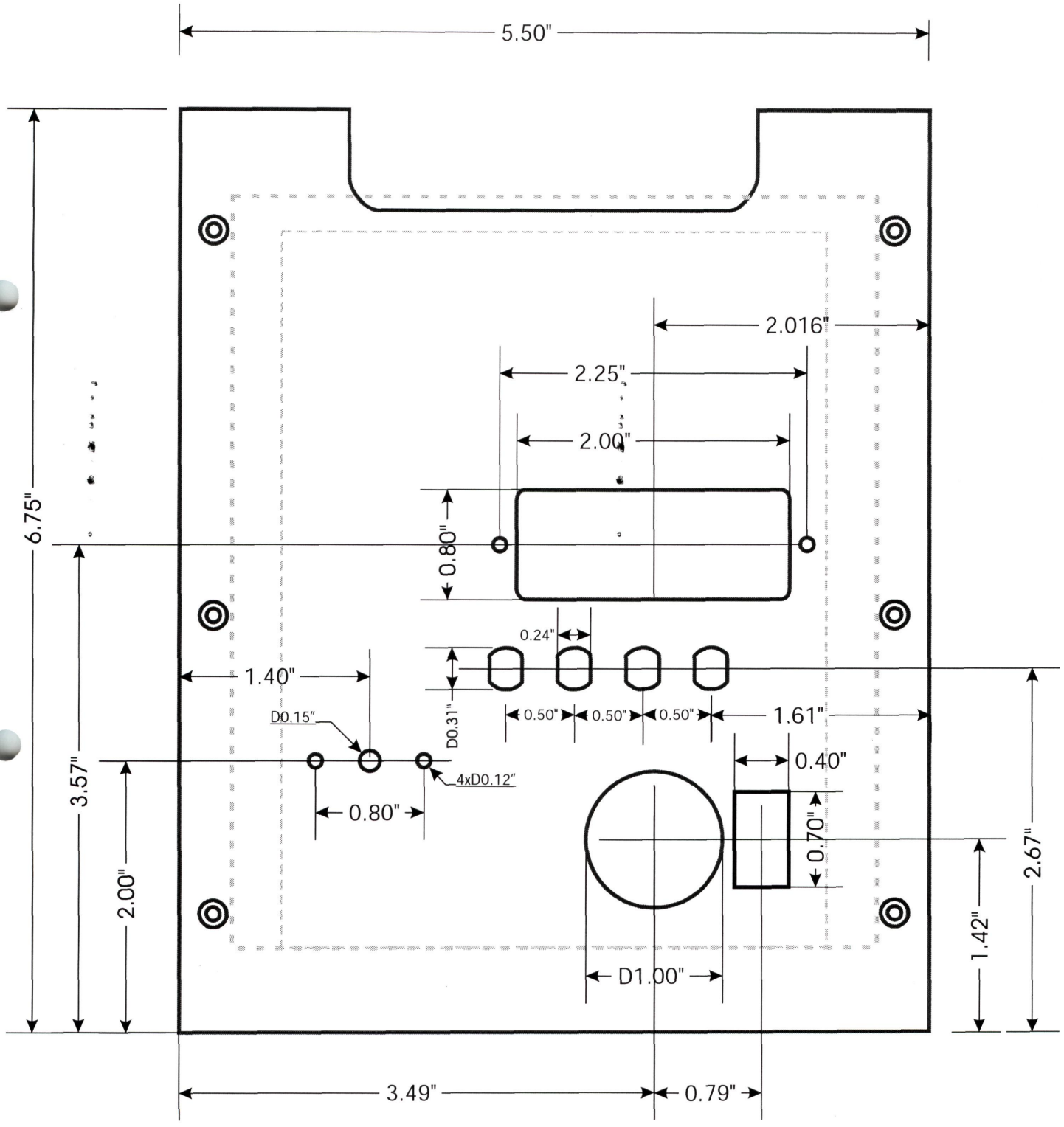
TABLE1

TEMP		OUTPUT(V)	
°C	°K	AD590	Rth
40	313.15		
30	303.15		
25	298.15	2.975537	3.74
20	293.15	2.925637	3.42
10	283.15	2.825837	2.72
0	273.15	2.726037	2.02
-10	263.15	2.626237	1.38
-20	253.15	2.526437	0.88
-30	243.15	2.426637	0.52

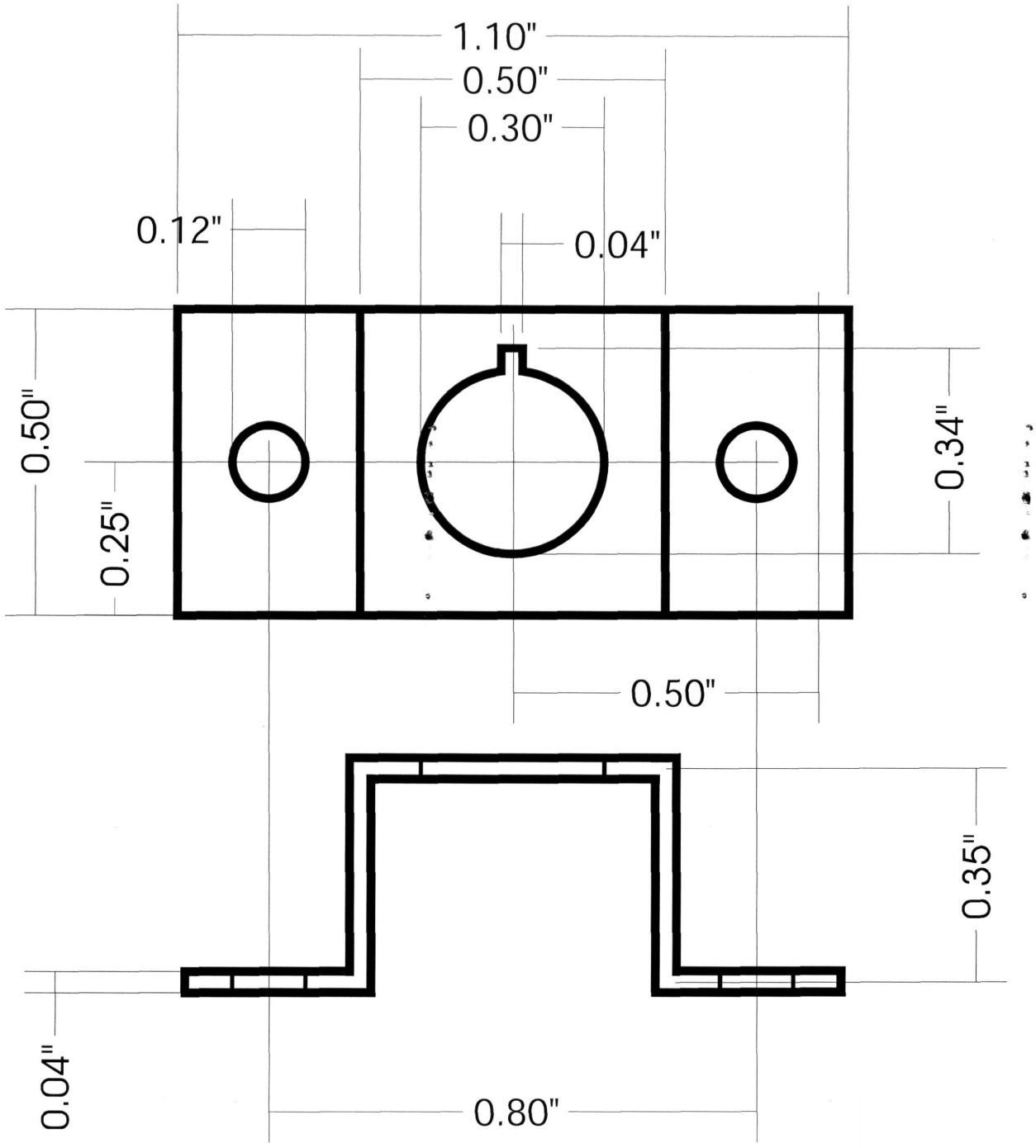
TABLE2

LED NO.	COLOR	Description
1	GREEN	VCC is ON
2	RED	Case temp. is abnormal.
3	GREEN	Comparators' power is ON
4	GREEN	+16.5V is ON
5	GREEN	-16.5V is ON
6	GREEN	+6.5V is ON
7	GREEN	-6.5V is ON
8	YELLOW	+36V is ON
9	RED	TEC temp.is over 1.5°C of the setting point
	GREEN	TEC temp.is under 1.5°C of the setting point

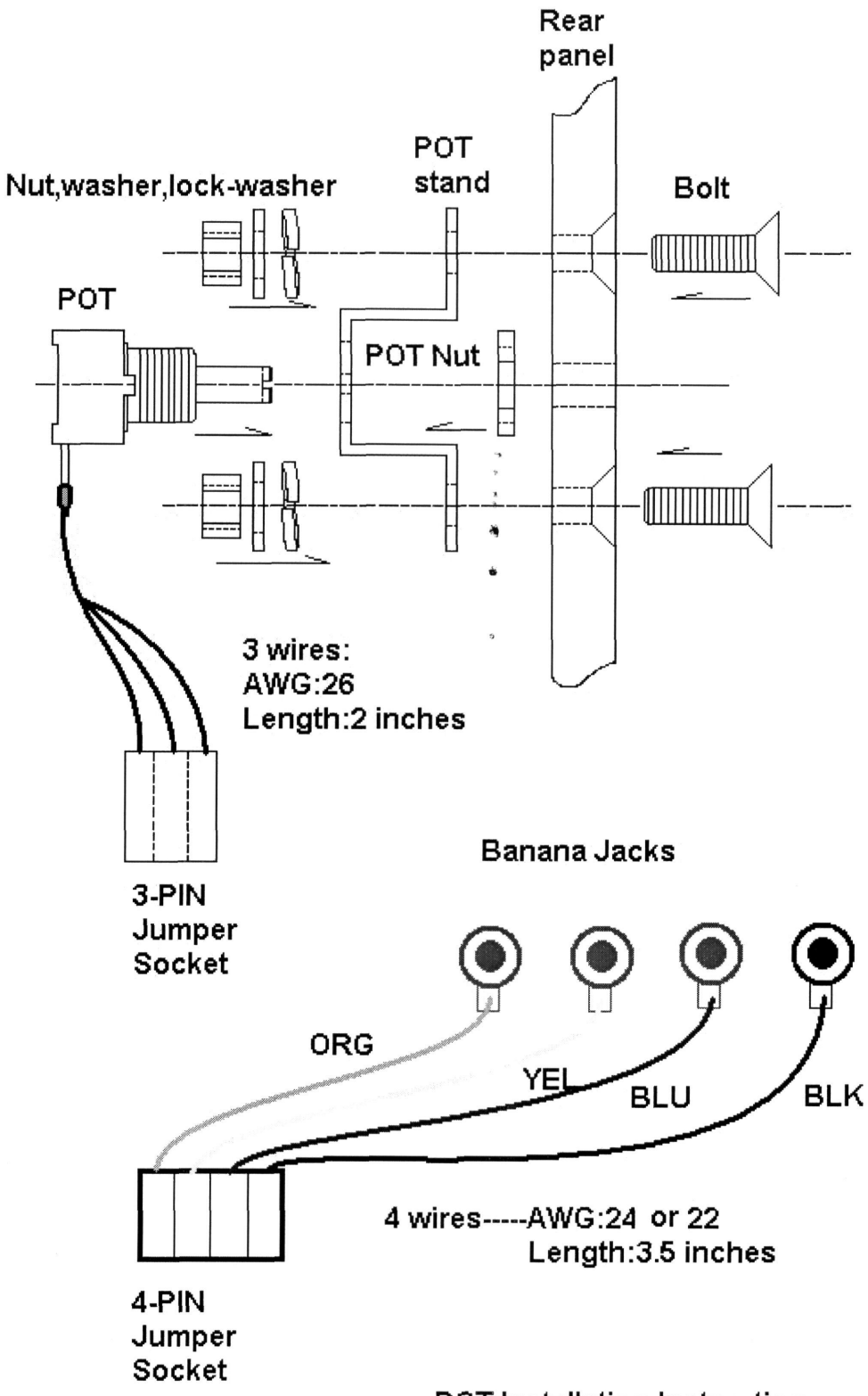




ARC78 Rear Panel Dimensions



POT stand



POT Installation Instruction