

- Unless otherwise stated:  
Resistors are 250 mW, 1% tolerance.  
Capacitors are 50V, 10% tolerance.
- OPA4277UA do not require bias cancelling resistors.
- DO NOT INSTALL (DNI).**  
D2, D6, D7, K3, K4, K6, R37, R42
- Port and Net Name scopes for this project are:  
Port: Global (connected throughout entire document)  
Net Name: Local (connected on same page only)  
PG2.SchDoc (Protel Hierarchy Block)
- Pocket PLC Input is setup as follows:  
Digital input is a photodiode with 2.2k resistor (optocoupler).  
A/D will be 0-10V (42k input impedance).
- Pocket PLC Output is setup as follows:  
Digital output is +24V or 10k to GND.  
D/A is 0-10V for actuator, +/-10V for Display.

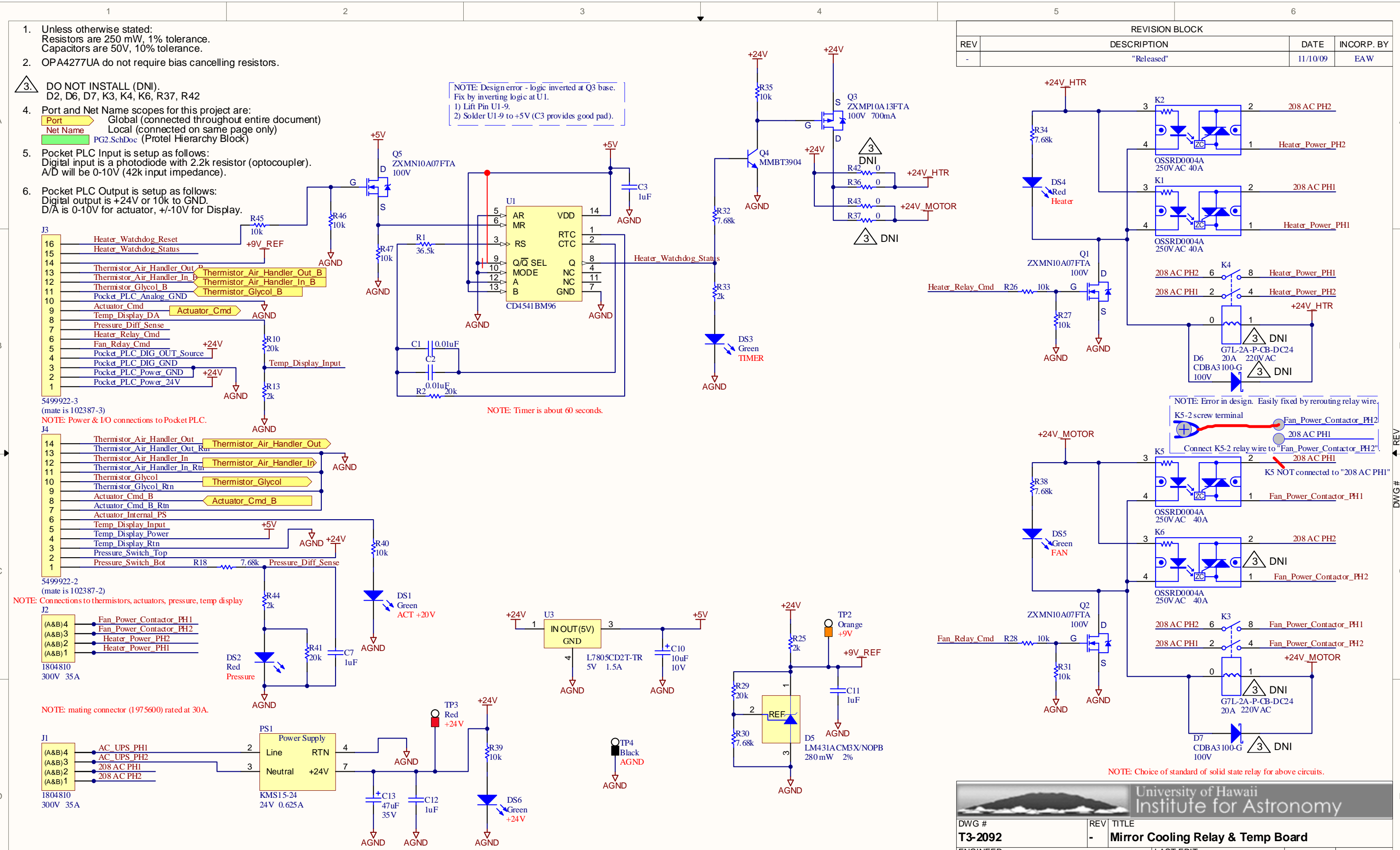
REVISION BLOCK			
REV	DESCRIPTION	DATE	INCORP. BY
-	"Released"	11/10/09	EAW

NOTE: Design error - logic inverted at Q3 base.  
Fix by inverting logic at U1.  
1) Lift Pin U1-9.  
2) Solder U1-9 to +5V (C3 provides good pad).

NOTE: Timer is about 60 seconds.

NOTE: Error in design. Easily fixed by rerouting relay wire.  
K5-2 screw terminal  
Connect K5-2 relay wire to "Fan\_Power\_Contactor\_PH2".  
K5 NOT connected to "208 AC PH1"

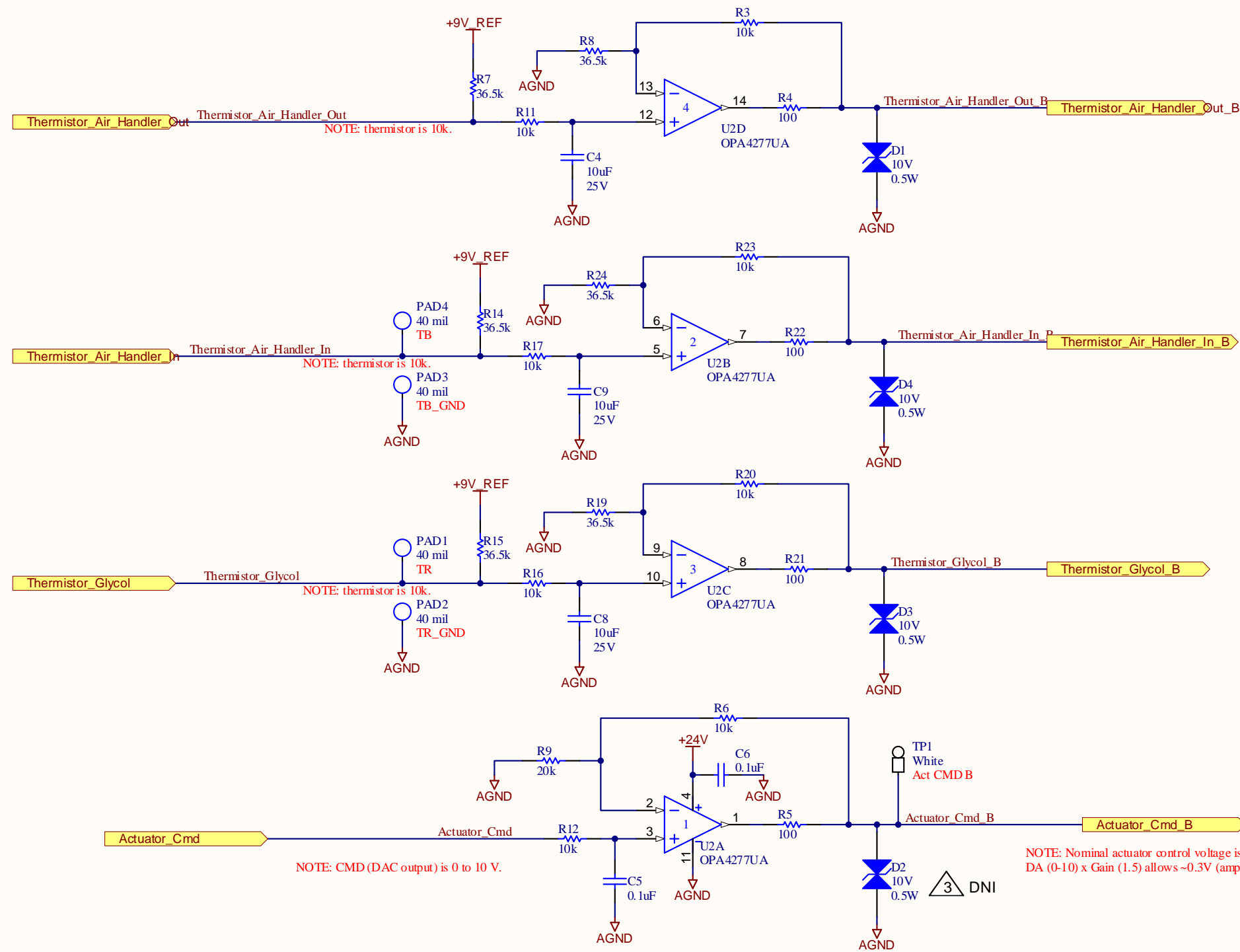
NOTE: Choice of standard of solid state relay for above circuits.



**WARNING: BOARD CONTAINS 208 VAC CIRCUITRY! BE CAREFUL.**

University of Hawaii  
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DWG # <b>T3-2092</b>	REV -	TITLE <b>Mirror Cooling Relay &amp; Temp Board</b>
ENGINEER E. Warmbier	LAST EDIT 12/14/2009 10:01:20 AM	SIZE <b>B</b>
FILE: Z:\Mirror Cooling\Protel Board Design\PG1.SchDoc		SHEET 1 of 2



DWG # MC-1000  
REV -