Testing procedure for TC2BIP **30 December 2005**

1. Control settings for testing

(These are the shipped settings **EXCEPT** for the Integrator which is shipped in the ON setting)
Temp1, Temp2 pots to 25C
Power to 0
Aux On/off to On
Heat/Cool to Heat only
P_{Main} 70%; I_{Main} 50%; G_{Main} 0
P_{Aux} 50%; G_{Aux} 0
Integrator Off.
Aux=Main set to **off** ie. independent.
Limits:+ set to fully CW; - set to CCW unless for use with Peltier.
Gain on Ch3 at horizontal (if installed)

2. Fuses

If the output is not working (eg. no heat to heaters) check the fuses. Use a screwdriver and press in and rotate to remove. Check the fuse visually or with a resistance meter. There is also an internal fuse on the main PCB but this should not blow unless there is a component failure in the power amplifier which is inlikely. The amplifier outputs are current protected and are also shut down if the heatsink gets too hot.

3. Current test

For 12V input the idle current should be approx. 90mA. The LED below the ON switch should glow and there should be a beep at power up.

4. Temperature indicator

[This test indicates whether the correct temperature is being recorded.]
Use 2 test leads with a BNCs at one end and EZ hooks at the other.
For the Main channel attach a 10kohm resistor and plug BNC into Main Probe input. The Temp meter set on Main should indicate approx. 25C.
For the Aux channel attach a 10kohm resistor and plug BNC into Aux Probe input. The Temp meter set on Main should indicate approx. 25C.

5.Feedback and OUTPUT

[This test indicates whether the power amplifier and feedback circuitry is working.]
Set up the Main channel as in 3. so that the Temp meter shows 25C.
Attach a 10ohm 5 or 10W power resistor to the Main OUTPUT to simulate a heater. Set the Temp1 control to 35C (make sure Temp1,2 switch is set to Temp 1). Rotating the Power control should increase the intensity of the Main Heat LED. The voltage across the power resistor should also increase to a maximum of about 5V and current to the controller should increase to about 0.5Amps. Rotate the Temp 1 control slowly back to 25C and the Heat LED should gradually dim. Repeat for the Aux OUTPUT using the power resistor using the 10K resistor as the probe input as in 3 (the Temp meter on Aux should read 15C).
If there is no output check the fuses on the rear panel. These should not blow in normal use but can when a low impedance load is used (eg. 3ohms).