



PS/TC-1 OPERATING INSTRUCTIONS

The Model **PS/TC-1** integrated low noise power supply and thermoelectric cooler controller is designed to operate photodetector preamplifiers and single and multi-stage thermoelectric coolers. The detector preamplifier usually requires a + - 15V input and ground for optimum gain, bandwidth, and noise performance. Pin 6 (+Vin), Pin 7 (-Vin), and ground are dedicated to the photodetector preamplifier. Verify wiring before activating the amplifier to avoid potential failure. The detector amplifier activates immediately when power is applied.

The PS/TC-1 controller is designed to work with a thermistor mounted to the cooler's cold plate, and provides a stability of + - 0.003 °C . The set point of the controller is continuously variable using the front panel potentiometer. The control unit range is between room temperature and -60 C, dependent on the cooler and heat sinking utilized. A DC ammeter is provided for monitoring current, as well as a green LED status indicator which, when lit, indicates the cooler is controlled as set.

The controller is connected to the cooler assembly through four shielded leads. Before connecting to the cooler, verify wiring. Pin 1 is the cooler positive lead, Pin 2 is the cooler negative lead and Pins 3 & 4 are the thermistor leads. Thermistor leads should not be grounded. After making connections to the cooler, check to insure that no shorts occur between any leads.

CAUTION MAKE SURE THE COOLER IS HEAT SUNK & POTENTIOMETER IS @ + 10 C BEFORE APPLYING POWER !

The front panel of the PS/TC-1 contains the TEMPERATURE SETPOINT potentiometer, red and green STATUS LED indicators, TE COOLER CURRENT meter, and a POWER-ON switch. The rear panel contains the (9) pin "D" connector jack and the power input module. The power input module is fused and must be set by the user for 120 VAC or 240 VAC.

BEFORE powering the unit, rotate the TEMPERATURE potentiometer counter-clockwise to + 10 c to ensure NO current bursts immediately to the cooler. Switch power on. The meter should be slightly above zero and the green STATUS LED should be on. Turning the TEMPERATURE SETPOINT potentiometer clockwise lowers the temperature set point. Adjust the SETPOINT potentiometer GRADUALLY to the desired temperature (check detector data sheet for proper operating temperature - do not attempt to set too low). The CURRENT meter will increase, the green STATUS LED will go out, and the red STATUS LED will go on until TE temperature stabilizes at the setpoint. The red STATUS LED will go out, and the green STATUS LED will go on, and the COOLER CURRENT meter will stabilize somewhere between 50 ma and 1.00 amp, a function of temperature setpoint.

If the TEMPERATURE SETPOINT potentiometer is set below the temperature capability of the TE cooler, the red STATUS LED will remain on, and after several minutes it will flash on / off. If this happens the user should immediately increase the SETPOINT to a temperature within the control range.