

# PR-59, TC-XX-PR-59

## Temperature Controller



### PR-59 SERIES TEMPERATURE CONTROLLER

The PR-59 temperature controller is designed for reversible (cooling/heating) control of thermoelectric assemblies requiring precise temperature control accuracy. The controller not only regulates the temperature, but also features two programmable fan outputs and an alarm output relay. The controller can be used as a stand-alone unit interface with RS-232 to read and control parameters and settings in real-time. An easy-to-use PC software is included for programming and visual review of output parameters. Custom configurations can be accommodated, however MOQ applies.

### FEATURES

- Operation in Cooling and Heating Modes
- Regulation mode is user selectable & configurable (PID, ON/OFF, POWER)
- Input power range can accommodate 11-30 VDC
- Programmable set point (via pc, or potentiometer)
- Outputs are available for fans, thermoelectric module, NTC thermistors or PT1000 sensors, alarm and LEDs
- RS-232 Communication
- Graphical User Interface that runs on Windows (does not run on Windows 7)

### BENEFITS

- Real-time control of regulator parameters and temperature readings via RS232 interface
- Stand alone operation
- Control temperature, from  $-20^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  ( $-4$  to  $+212^{\circ}\text{F}$ ) with the standard NTC sensor  
Other temperature range possible with other (NTC, PT1000) sensors
- Configurable alarms
- Temperature resolution of max  $0.05^{\circ}\text{C}$
- Use NTC or PT1000 sensors
- Pulse width modulation of output: (Base Frequency of 10 kHz)
- Control Stability of  $\pm 0.05^{\circ}\text{C}$  ( $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ )
- Two alarm temperature sensor inputs with adjustable alarm set points
- Alarm relay output, normally closed (will open on alarm); 1 A @ 24 VDC/120 VAC
- Adjustable Fan Speed

### MARKETS

- Medical diagnostics
- Analytical instrumentation
- Photonics laser systems
- Electronic enclosure cooling
- Chillers (liquid cooling)

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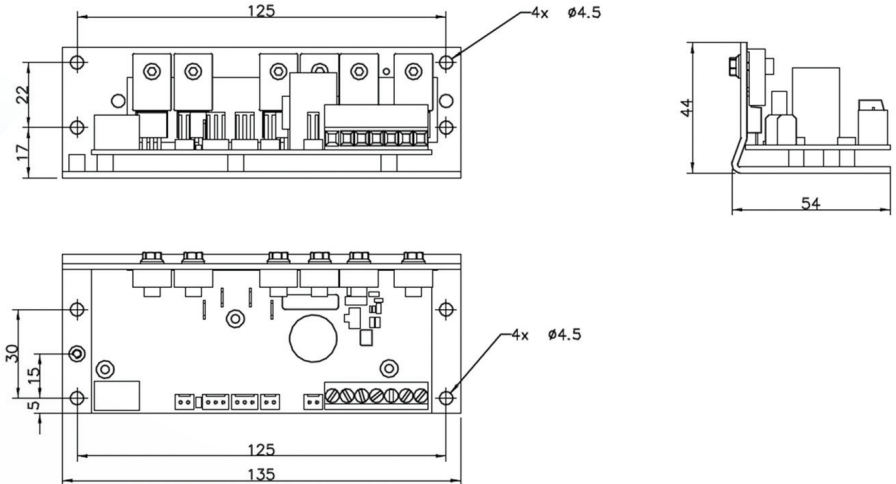
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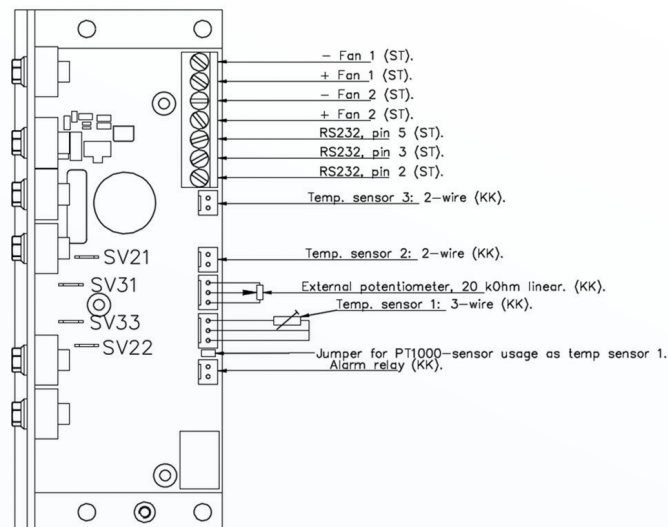
[www.lairdtech.com/thermal](http://www.lairdtech.com/thermal)

| Specifications         |                                                                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Power                  |                                                                                                                                                    |
| Voltage                | 10 to 30 VDC                                                                                                                                       |
| Current                | 15 A (30 A with additional cooling)                                                                                                                |
| Power                  | Up to 900 W (with additional cooling)                                                                                                              |
| User Interface         |                                                                                                                                                    |
|                        | Graphical User Interface PC program<br>External Potentiometer (optional)                                                                           |
| Sensors                |                                                                                                                                                    |
| Temp 1 Sensor          | NTC or PT1000                                                                                                                                      |
| Temp 2 Sensor          | NTC                                                                                                                                                |
| Temp 3 Sensor          | NTC                                                                                                                                                |
| Temp 4 Sensor          | NTC (onboard)                                                                                                                                      |
| Outputs                |                                                                                                                                                    |
| Thermoelectric Module  | PWM, 0-Supply Voltage @ $\leq 15$ A (30 A with additional cooling)                                                                                 |
| Fan 1                  | Linearly Regulated: 0-Supply Voltage @ 2 A                                                                                                         |
| Fan 2                  | Linearly Regulated: 0-Supply Voltage @ 2 A                                                                                                         |
| Alarm Relay            | 1 A @ 24 VDC/120 VAC (will open on alarm)                                                                                                          |
| LED                    | Regulator Voltages, Regulator Activity, Alarm, Relay Status                                                                                        |
| Alarms                 |                                                                                                                                                    |
| Low Voltage            | If voltage is lower than programmed minimum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened              |
| High Voltage           | If voltage is higher than programmed maximum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened             |
| Thermoelectric Current |                                                                                                                                                    |
| Over                   | If the Current is higher than the programmed maximum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened     |
| Under                  | If the Current is lower than the programmed minimum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened      |
| Fans 1 & 2 Current     |                                                                                                                                                    |
| Over                   | If the Current is higher than the programmed maximum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened     |
| Under                  | If the Current is lower than the programmed minimum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened      |
| Temp Sensors 1         |                                                                                                                                                    |
| Over                   | If the temperature is higher than the programmed maximum level turn on alarm LED                                                                   |
| Under                  | If the temperature is lower than the programmed minimum level turn on the alarm LED                                                                |
| Temp Sensors 2,3,4     |                                                                                                                                                    |
| Over                   | If the temperature is higher than the programmed maximum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened |
| Under                  | If the temperature is lower than the programmed minimum level the outputs are shut down, the Alarm LED is turned on and the Alarm Relay is opened  |

## ISOMETRIC DRAWINGS



## INPUT/OUTPUT DESCRIPTION



### Notes:

1. NTC-1 thermistor included.
2. Mounting hardware is not included. Clearance holes available to accommodate M4 machine hardware or standoffs.
3. Mating connectors are not included. For input power connections (SV21, SV31, SV33, SV22) use 0.250" fast-on style terminal. For temperature sensors, external potentiometer and alarm relay use Molex KK 2695, 6471 or 7880 Series connectors. Au plating is recommended on mating pin terminals.



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