

## Q SERIES TEMPERATURE CONTROLLER

The Q Series thermostatic controller is a microcontroller based device that can be incorporated into a thermoelectric assembly (TEA) to add integrated temperature control. This controller functions as a cooling control device and features an adjustable temperature set point range from 0°C to 10°C. The Q Series controller provides a single directional temperature control for standard or custom thermostatic control with several input and output options. Custom configurations are available, however MOQ applies.

### FEATURES

- Operation in cooling mode.
- Regulation mode is ON/OFF at the programmed set point and hysteresis.
- Input power range can accommodate 11 to 58 VDC, nominally 12 to 48 VDC.
- Outputs are available for fan, thermoelectric module, NTC thermistor, tachometer sensor, overheating thermostat switch, alarm, and LED. Some features sold on custom configurations only.

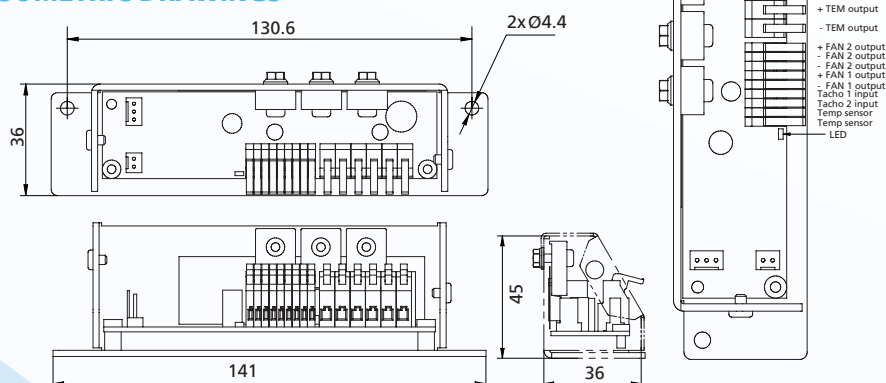
### BENEFITS

- The controller's temperature set point can be adjusted with an internal potentiometer in the interval range of 0°C to 10°C.
- Tachometer sensor inputs provided to measure the speed of two fans. Sold on custom configurations only.
- Overheating thermostat switch input available to sense an over temperature condition and will turn off power to TEA. A thermostat is required for operation.
- Alarm and LED outputs available to indicate functional status of controller.

### MARKETS

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

### ISOMETRIC DRAWINGS



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| Specifications  |   |
|---|---|
| Power   |   |
| Voltage   | 11 to 58 VDC  |
| Current   | 8 A without added cooling / 16 A with added cooling   |
| Power   | 786 W @ 48 VDC Max, 384 W @ 24 VDC Max, 192 W @ 12 VDC Max  |
| User Interface  |   |
|   | Onboard Potentiometer   |
| Sensors   |   |
| Temp Sensor   | NTC Thermistor  |
| Fan Tachometer 1  | Use with fans w/ an open collector tachometer   |
| Fan Tachometer 2  | Use with fans w/ an open collector tachometer   |
| Outputs   |   |
| Thermoelectric Module   | Supply voltage @ $\leq 16$ A  |
| Fan 1   | Supply voltage @ 2 A  |
| Fan 2   | Supply voltage @ 2 A  |
| Alarm Relay   | Open collector, Opto-isolated   |
| Overheating Thermostat  | Overheating protection  |
| LED   | Status/Errors   |
| Alarms  |   |
| Low Voltage   | If voltage is lower than programmed minimum level the outputs are shut down after a programmed time             |
| High Voltage  | Outputs are shut down instantly   |
| Tachometer 1 & 2*   | If the RPM signal is lower than the programmed minimum level, error is indicated.                               |
| Max Voltage   | VCEO = 35 V, VECO = 6 V   |
| Max Current   | Ic = 50 mA  |
| Note: All programming of parameters are conducted by Laird Technologies |   |
| Temperature Regulation:   |   |
| ON/OFF mode   | Controller switches the TEM output between full power and zero power at the programmed set point and hysteresis |
| Programmed Control Set Point  | Cooling at 5°C, Off at 2°C  |
| Trim Range  | $\pm 5^\circ\text{C}$   |
| Accuracy  | $\pm 1^\circ\text{C}$   |
| Protection  |   |
|   | Over and under voltage  |
|   | Reverse polarity  |

\* Feature sold on custom units only.

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