

Dual Channel Thermoelectric Cooler Controller



FEATURES	BENEFITS
True Dual Channel Capability	Highly cost effective when two controllers are required.
Complete Digital Programmability	Maximum control with a user-friendly front panel interface
Exceptional Control Stability	Provides long-term temperature stability of < 0.002° C
PID Control	Obtain tight temperature control with quick response and fast settling time.
Advanced Auto-Tuning	Automatically adjusts the critical operating parameters for enhanced performance.
Dual Digital Displays per Channel	Simultaneously displays set point and actual temperature for on-the-spot assessment.
Optional GPIB,	Enhances the instrument's versatility.

Product Description

The Series 860 Dual Channel Rack Mounted Thermoelectric Cooler Controller, like its single channel counterpart the Series 850 Rack Mounted Thermoelectric Cooler Controller, represents a significant advance in the state-of-the-art of thermoelectric cooler (TEC) controllers. The Series 860 provides two separate TEC Controllers in one 19" rack. It's no secret that in the past, thermoelectric cooler controllers required a significant amount of hands-on operation to provide satisfactory performance, particularly when variations in the load and/or environmental conditions existed. The Series 860 high power TEC Controller utilizes advanced control technology in combination with auto-tuning capabilities to provide unprecedented performance at a very affordable price. Unlike many industrial controllers that have cluttered front panels, the Series 860 TEC Controller features a user-friendly front control panel design. The Series 860 TEC Controller features full proportional, integral, and derivative (PID) control

that provides exceptionally tight control over a wide temperature range, as well as rapid response to changes in operating conditions. The auto-tuning feature helps to ensure maximum performance over a broad spectrum of operating conditions. Auto-tuning sets the critical PID terms to match the conditions of the application and provides fast response while minimizing overshoot and undershoot. From the user's perspective, the need to make frequent manual adjustments has been virtually eliminated. For unique applications, users have the option to manually adjust the instrument's control parameters as desired. RS485 Serial Communications is standard. RS232C is optional. The Series 860 Thermoelectric Cooler Controller has five standard output power ratings for each channel:

30 watts	2 A @ 15 VDC
60 watts	4 A @ 15 VDC
90 watts	6 A @ 15 VDC
120 watts	8 A @ 15 VDC
150 watts	10 A @ 15 VDC

Specifications		Display:	
Control	Uni-polar or Bi-polar, constant current, PID with Auto-tuning. User can select P, or P&I control only.	Thermoelectric Cooler temperature and set-point temperature in °C or °F (user selectable) with an RTD, thermocouple, AD590/592 and LM35/135/335. For a thermistor, the display is in Kohms.	
Compliance Voltage:	15 VDC	Display Resolution:	Thermistor 100 Kohm range, 0 to 99.99k or 10 ohms Megohm range, 0 to 999.9k or 100 ohms
Maximum Output Current:	Up to 10 amperes per channel for a total of 300W (150W/ 2 channels)	For other sensors, such as RTDs, thermocouples, AD590/592, and LM35/135/335 sensors, the resolution is 0.1 °C.	
Standard Maximums per channel:	2, 4, 6, 8, or 10 amperes	AC Power:	115/230 VAC, Internally selectable, 47-63 Hz.
Maximum Output Power:	Up to 300 watts (150W per controller)	Internal Cooling:	Up to two (2) fans
Standard maximums per channel:	30W, 60W, 90W, 120W, and 150W.	Weight	18 pounds (8.165 kg) maximum (300 watt instrument)
Temperature Sensors:	100 ohm RTD, Types E, J, K, N, and T thermocouples, thermistor, AD590/AD592, and LM35/LM135/LM335 as well as external voltage and current inputs	Controller Dimensions:	5.25 in. (133.35 mm) Height 19 in. (482.60 mm) Width 15.9 in. (403.86 mm) Length (3U chassis height) Note: All dimensions are without optional equipment
Range of Sensors:	RTD's thermocouples, thermistors (0 to 100 Kohm and 0 to 1 Megohm), and active sensors AD590/592, and LM35/LM135/LM335 (-50°C to 150°C typical)	I/O Connections	Thermoelectric Cooler, Temperature Sensor, AC Power, optional EIA/RS-232/485 (using ¹ MODBUS protocol) and GPIB
Higher and lower temperatures can be measured depending upon the sensor type. Please consult the factory.		Operating Temperature:	0° to 50°C (32° – 122°F)
Long Term Stability	< 0.002°C	Warranty	Two years
Noise and Ripple	< 1 mA		
Front Panel Displays:	Two 4-digit LED displays – red for actual Per Channel Temperature, and green for set-point temperature		¹ MODBUS is a registered trademark of Modicon, Inc., Industrial Automation Systems.



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