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marlow industries inc.®

Temperature Controller/ Power Supply SE5000 Series

The SE5000 Series Temperature Controller/Power Supply (TC/PS) expands Marlow Industries' line of thermoelectric accessories. This linear bipolar constant current power supply is designed for the precision temperature control of all types of thermoelectric cooling devices. With an adjustable DC output power from 18 watts for the SE5000 to 192 watts for the SE5020, the TC/PS provides the versatility required for a variety of applications, including: temperature control of laser diodes, infrared detectors, CCDs and thermoelectric heat exchangers.



The SE5000 Series TC/PS offers:

- The wide precision temperature control range – from –99.9°C to 150°C
- Adjustable bipolar DC output current
- Simultaneous display of temperature and setpoint
- Remote programming and readout through optional RS-232-C or RS-422-A interfaces
- Programmable PID control/ ramp-to-setpoint control
- Operation with two different sensor types- thermistor or thermocouple
- High, low, and deviation limit alarms
- Automatic and manual operating modes
- Digital readout of output voltage and output current
- Operable on 115/230 VAC at 60/50 Hz for worldwide use

Wide Temperature Control Range

The TC/PS provides precision temperature control between –99.9°C and 150.0°C for thermoelectric cooling devices. Temperature control stability is typically ± 0.1°C with calibration accuracy of 0.5°C.

Multi-Option Flexibility

Microprocessor controlled parameters are easy to program and display on three, four-digit LED displays. Front panel controls allow the TC/PS to be operated in two modes: as a constant current power supply in the manual mode or as a temperature controller in the automatic mode. RS-232-C or RS-422-A interfaces are available for remote computer control. Read-only and hidden parameter configurations also prevent unauthorized tampering of front panel controls. The TC/Ps can be used with four thermistor types or a Type T thermocouple, according to operator needs.

PID Control

The operator may select programmable Proportional Integral Derivative (PID) control with or without ramp-to-setpoint. PID control minimizes overshoot, eliminates steady-state error, and allows the fastest response from one setpoint to another. PID control with ramp-to-setpoint allows the operator to control the rate of temperature. Changes.

Safety Features

Automatic shutdown for an open or shorted thermistor or an open thermocouple prevents damage to the thermoelectric cooler. High, low, or deviation limit alarms alert the operator of any deviation form programmed limits.

Digital Displays

Digital displays allow the operator to check the measured temperature, setpoint temperature, and the voltage/current at a glance. Temperature readings may be programmed to display in Celsius or Fahrenheit. A red/green bar graph display indicates in tenths of a unit (based on current limit) whether the controller is operating in the heating or cooing mode.

Operator Adaptability

The TC/PS has a tilt-up stand for bench-top use. It may also be ordered with a rack mount adapter option and for installation in a standard EIA 19" cabinet. Operable on 115/230 VAC at 60/50 Hz, the TC/PS can be used worldwide. The linear output minimizes electrical noise to less than 10 mA rms. Recommended operating temperature is 0°C to 50°C with storage between -10°C and 50°C.

Specifications	All Models
Temperature Control Range	-99.9°C to 150°C
Control Stability	±0.1°C (typical)
Ramp Rate Range	0.01°/min. to 99.99°/min
Control Mode	PID & PID ramp-to-setpoint
Linearization Accuracy	0.1°C for thermistor, 0.2°C for thermocouple
Calibration Accuracy	0.5°C
Power Supply Output Stage	Linear bipolar
Ripple and Noise	Less than 10 mA rms
Voltage/Current Readout Accuracy	1% of reading plus two digits
Operating Temperature	0°C to 50°C
Storage Temperature	-10°C to 50°C
AC Input Power	104-125/208-250 Vac, 48-62 Hz

Specifications	SE5000	SE5010	SE 5020
Output Power	18 W max	96 W max	192 W max
Output Current	0 to ± 2 Adc	0 to ± 6 Adc	0 to ± 12 Adc
Output Voltage Compliance	0 to ± 9 Vdc at 2 A to ± 12 Vdc at 1 A	0 to ± 16 Vdc at 6 A, to ± 21 Vdc at 1 A	0 to ± 16 Vdc at 12A to ± 21 Vdc at 1 A
115 VAC Input Current	0.6 A max	2.4 A max	4.8 A max
230 VAC Input Current	0.3 A max	1.2 A max	2.4 A max
Dimensions	5.22” h x 8.38” w x 10.6” d (13.3 cm h x 21.3 cm w x 26.92 cm d)	5.22” h x 8.38” w x 16.0” d (13.3 cm h x 21.3 cm w x 40.6 cm d)	5.22” h x 8.38” w x 16.0” D (13.3 cm h x 21.3 cm w x 40.6 cm d)
Weight	10 lbs (4.55 kg)	20 lbs (9.09 kg)	30 lbs (13.64 kg)

SE5000 Series Standard Equipment

- AC power cord, 7-ft (2.13-m) long
- DC output cable, 8-ft (2.44-m) long
- Operation manual
- Type T thermocouple (copper/constantan), 12-in (30.5-cm) long
- Thermocouple cable, 8-ft (2.44-m) long

Interface Options (specify when ordering)

- RS-232-C remote computer control interface w/9 or 25 pin connector, 12-ft. (3.05-m) long cable
- RS-422-A remote computer control interface w/25-pin connector, 12-ft (3.05-m) long cable

Accessories (specify when ordering)

- Single-rack mounting kit
- Dual-rack mounting kit
- Various bead and chip thermistors
- Type T thermocouple (copper/constantan)

Marlow Industries, Inc.
10451 Vista Park Road
Dallas Texas 75238-1645
TEL: 214-340-4900
FAX: 214-341-5212
Internet: http://www.marlow.com

Marlow Industries Europe
Aberdeen House, South Road
Haywards Heath
West Sussex RH164NG UK
TEL: +44 (0)1444-443404
FAX: +44 (0)1444-443334

Marlow Industries Asia
1-1-8-401
Uehara, Shibuya-ku
Tokyo, Japan 151-0064
TEL: +81 (3) 5454-5280
FAX: +81 (3) 5454-5281

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