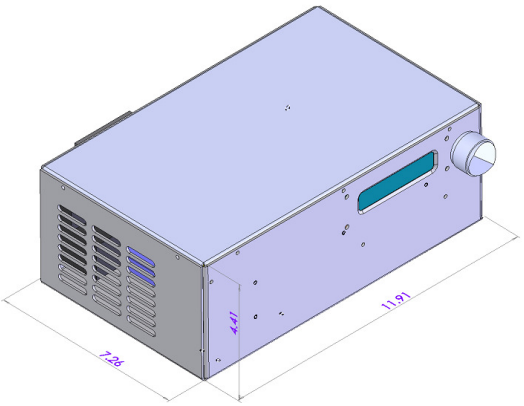
1. Introduction

Warning: Electrical shock hazard. Do not operate this device before reading the entire users' manual. Do not operate this device if it is damaged. Do not attempt to disassemble this device.



ETE's Master Controller MC-1000 is developed to work with ETE's cold plates to provide complete thermal solutions for our customers.

MC-1000 is designed to be able to house various power supplies to provide a wide range of power, current and voltage combinations such that it can be factory configured to drive any of ETE's cold plates. It not only provides temperature control, but also provides power to the fans of ETE's cold plates so that our customers will be able to use MC-1000 to drive the cold plates without any other power supplies.

MC-1000 can be configured to accept external power input such as a bench top adjustable power supply so that users can vary the power to TECs based on the particular TEC configurations.

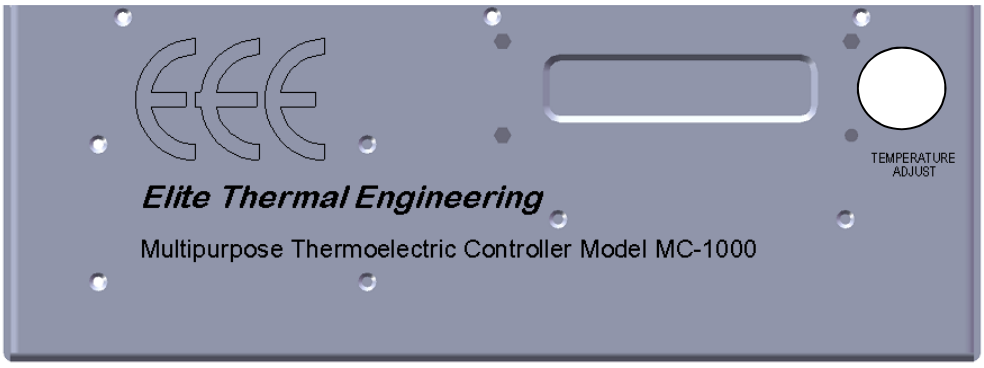
MC-1000 can also be used as a heater controller. Please contact ETE for more details.

MC-1000 accepts universal 90～264VAC power input, converts it to power for TECs and fans.

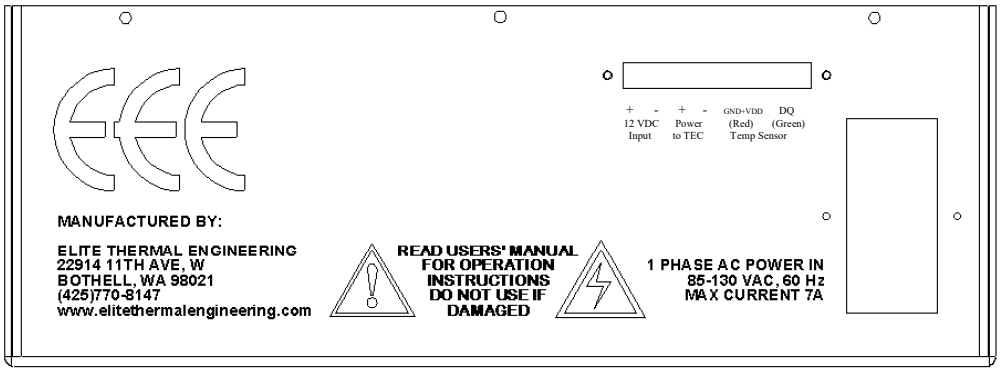
Shipped with MC-1000 is a digital temperature sensor (by Dallas Semi P/N DS18B20) that will be mounted by the user to the desired location of cold plates for temperature control. MC-1000 only works with the provided temperature sensor.

2. User interface

MC-1000 has extremely simple user interface. On the front of MC-1000, there is a LCD display that displays the set temperature and actual temperature, and a temperature adjustment knob for adjusting the set temperature.



On the back of MC-1000, there is the AC power entry module, and a terminal strip for connecting to TECs, fans, and temperature sensor. Please note that the sensor is operated in parasitic mode, the GND and VDD are shorted, the wire color is RED for connecting to pin 5 of the terminal strip; DQ wire is GREEN for connecting to pin 6 of the terminal strip.



3. Specifications and configurations

Parameters	Specifications	Remarks
Input voltage	1 phase universal 90～264VAC	
Compatible temperature sensor	Digital temperature sensor by Dallas Semi P/N DS18B20 (provided with MC-1000)	
Temperature sensor accuracy	0.5ºC	
Temperature adjustment range	-25 to 102 ºC	
Temperature adjustment resolution	0.5ºC	
Temperature stability	±0.1ºC typical, ±0.5ºC max	
Operating temperature range	-10 to 50ºC	
Operating humidity	0-95% relative humidity, non-condensing	
Storage temperature	-20-65ºC non-condensing	

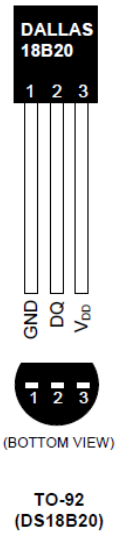
Maximum input current	MC-1000-050	1.5A	For OCP-050, OCP-055
	MC-1000-110	2.5A	For OCP-110
	MC-1000-150	4.25A	For OCP-150
	MC-1000-300	8.5A	For OCP-300
Maximum output power to TECs	MC-1000-050	36VDC x 4.0A	For OCP-050, OCP-055
	MC-1000-110	24VDC x 7.5A	For OCP-110 & SCP-130
	MC-1000-150	36VDC x 7.5A	For OCP-150, or OCP-150-48
	MC-1000-300	40VDC x 15A	For OCP-300
Maximum output power to fans	12VDC x 3.5A		

Caution: MC-1000 has internal custom current/voltage limit setting options that may be configured to work with TEC modules built by customers. Please contact ETE if you would like to learn more about the range of TEC power outputs. The controller algorithm is based on PWM (Pulse-Width-Modulation) that is proportional to the difference between the set temperature and the sensed temperature, so it is important to set the TEC current to the optimum level in order to achieve desired operation performance. Do not use MC-1000 for cooling applications where optimum current is lower than MC-1000's rated maximum current. Consult ETE if you plan to use MC-1000 for your own thermoelectric assemblies.

4. Digital temperature sensor

Caution: MC-1000 is designed to work with the provided digital temperature sensor by Dallas Semi P/N DS18B20 only. Please do not attempt to use it with thermistors or RTDs.

The digital temperature sensor is packaged in a TO-92 can as shown on the right. Users can go to http://www.maxim-ic.com/quick_view2.cfm/qv_pk/2812 to obtain the complete datasheet.



5. Pricing and Contacts

For pricing and availability, please contact ETE in any of the following options:

Elite Thermal Engineering, LLC

22914 11th Ave, W, Bothell, WA 98021

Phone: 425-770-8147

Email: contact@elitethermalengineering.com