

## 1. Introduction

OCP-110 is a high performance cooling module designed for OEM applications for laser products, medical equipments and semiconductor processing. It is also a convenient solution for general cooling of common fiber coupled lasers in laboratory environment.

The outline drawing on the right identifies the functional mounting hole patterns. It has mounting patterns for the most popular fiber coupled laser diodes from QPC, nLight, Jenoptic and LIMO. Custom mounting hole patterns is available upon request.

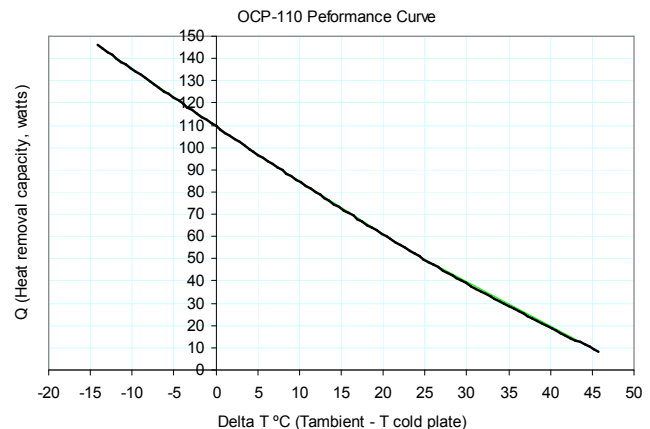
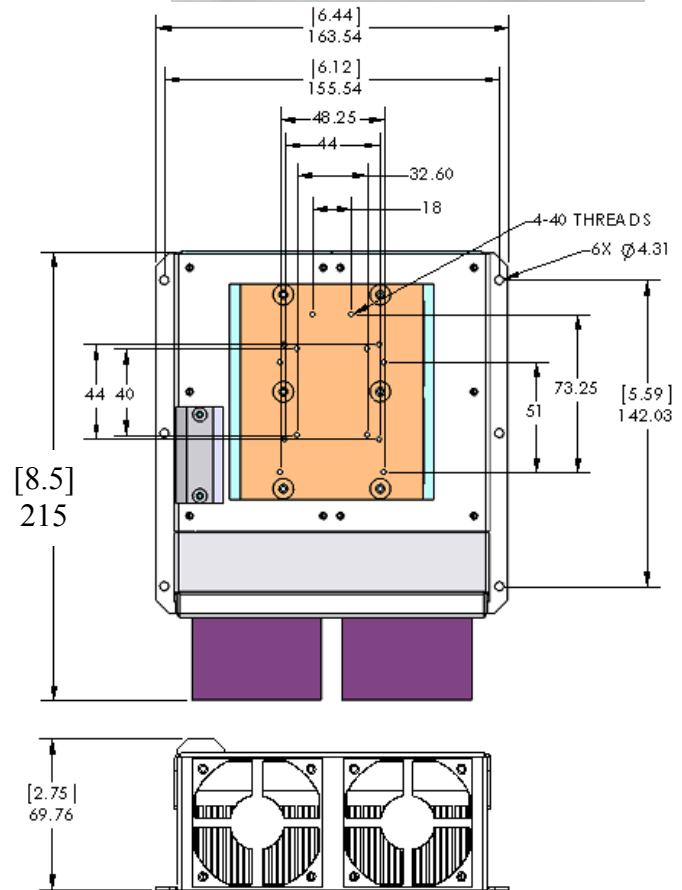
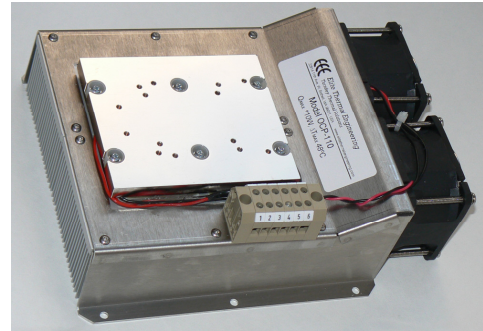
All electrical connections are provided through the terminal block. Table 1 below lists the pin out designations:

Pin # marked on terminal block	Designation	Maximum rating
1	TEC +	8.5A x 24V
2	TEC -	
3	thermistor VDD+GND	N/A
4	thermistor DQ	
5	Fan +	1.1 A x 12V
6	Fan -	

## 2. Performance curve

The curve on the right illustrates the performance of OCP-110. The Y-axis is the heat load to the cold plate, the X-axis is the difference between the lowest temperature on cold plate and ambient at a given heat load. Please notice that the cold plate temperature is an average figure, the temperature directly underneath the diode source will be higher and the edge of the cold plate will be lower. This curve is obtained with 3.6Amps current to each TEC with the cold side set at 25°C. The performance will improve with hotter set points and decrease if the set point is lower.

## 3. Cooling Fan Specifications (2 fans in parallel)



Parameters	Standard
Rated voltage	12VDC
Operating voltage range	5.5~13.8 VDC
Input power	9.9w
Rated current	1.1A
Noise	47dBA

#### 4. TEC specifications

The maximum operating current for the TECs is 8.5A, and maximum voltage is 24VDC at room temperature. Maximum operating current and voltage increases if ambient is higher. Exceeding the specified maximum current will reduce the performance and degrade the reliability of TECs. The typical optimum current for each TEC is about 3.25~4.0 Amps depends on the set

temperature, heat load, interface quality between the diode and cold plate, and ambient temperature. Users are advised to manually ramp the TEC driving current after assembling the diode on the cold plate to identify the optimum current and set current limit accordingly so that the TEC will not runaway.

There are 4 TECs in OCP-110 that are pre-wired with 2 sets in series. We highly recommend driving the 2 TEC sets in series to ensure optimum performance. The TECs shall run from constant current source. Use OCP-110-48 when you want to use our controller or use 48V power.

All TECs are environmentally sealed for operating below dew points. The maximum rated operating temperature for TECs is 85°C. The thermal resistance from TEC to ambient of OCP-110 heatsink is 0.11°C.

#### 5. Controlling OCP-110

ETE now offers a controller for OCP-110. MC-1000 is our new thermoelectric controller developed specifically for our cold plates. MC-1000 takes standard 110VAC input, provide power to TEC and fans of the cold plate. A digital thermistor on the cold plate may be affixed to the cold plate. The user only need to run 6 wires from the cold plate to the controller.

#### 6. Pricing and Contacts

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

#### Elite Thermal Engineering

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MC-1000