

**Liquid Series Thermoelectric Cooler Assembly**

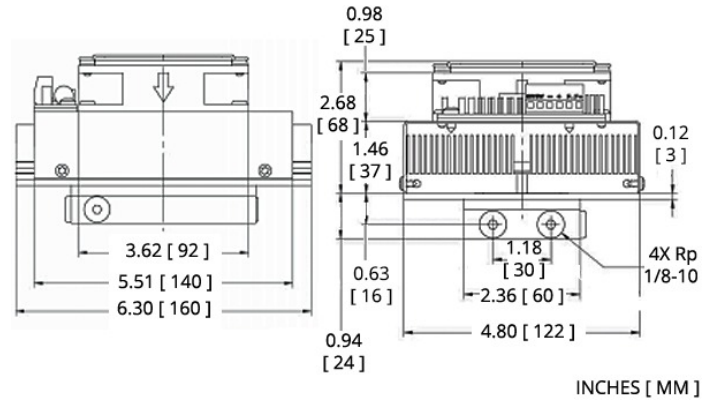
The LA-045-12-02 thermoelectric cooler assembly offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through a liquid heat exchanger and dissipated thru a high density heat sink equipped with an air ducted shroud and brand name fan. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. It has a maximum  $Q_c$  of 43 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 42 °C at  $Q_c = 0$ . The liquid heat exchanger is designed to accommodate distilled water with glycol. Corrosion resistant turbulators are enclosed inside channels to increase heat transfer. Mating port adaptors are sold separately.

**Features**

- Compact design
- Precise temperature control
- Reliable solid-state operation
- DC operation
- RoHS-compliant

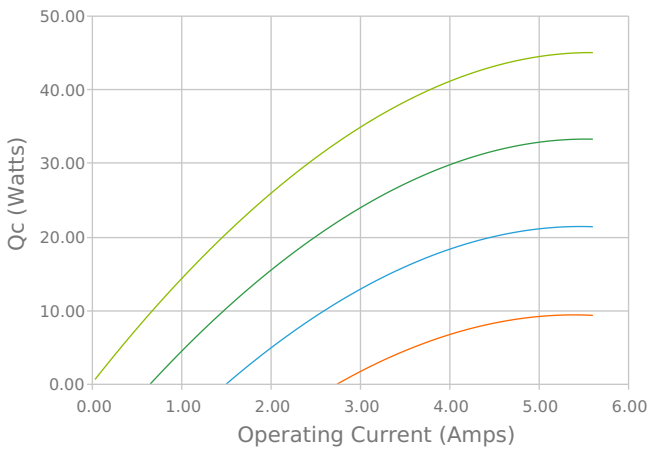
**Applications**

- Medical Diagnostics
- Industrial Lasers
- Medical Lasers
- Analytical Instrumentation

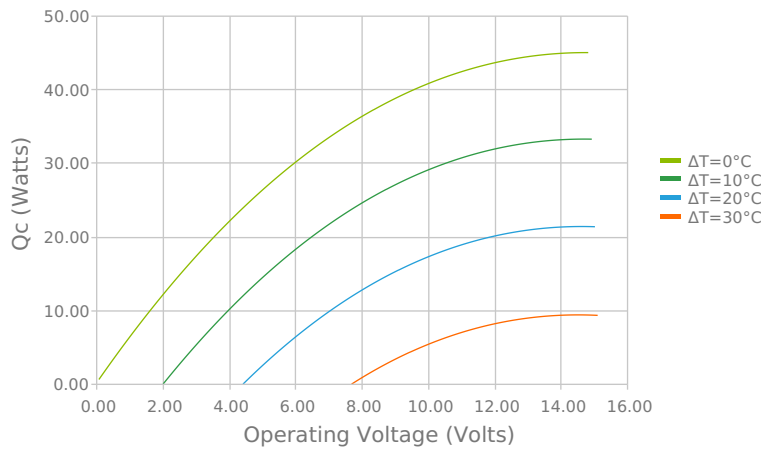


**ELECTRICAL AND THERMAL PERFORMANCE**

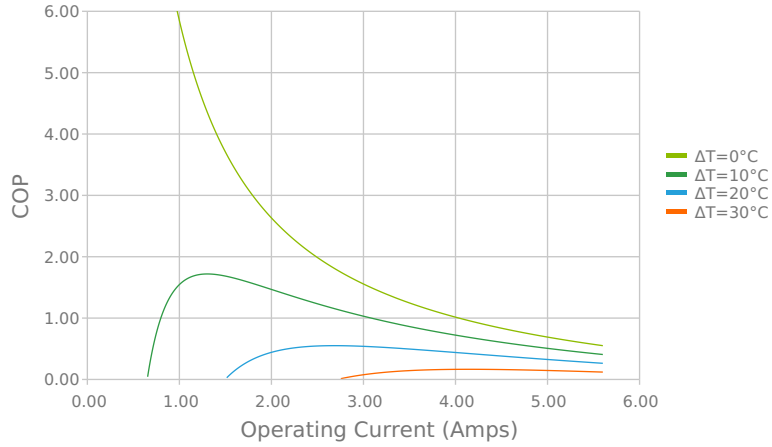
Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{ambient} = 35^\circ C$  |  $T_{control} = 20^\circ C$



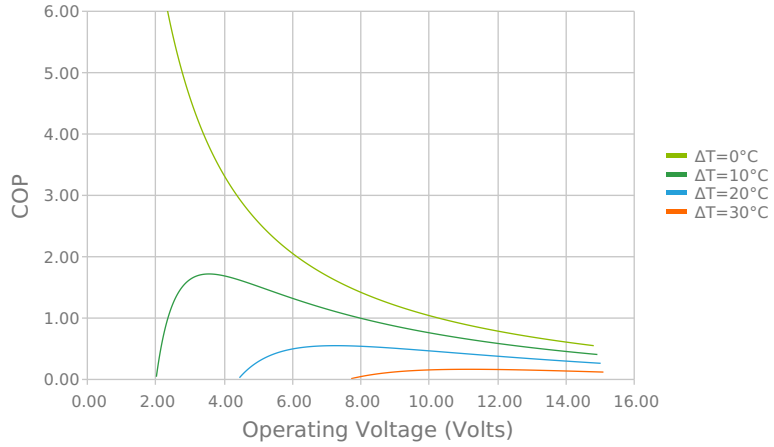
Heat Pumped at Cold Side ( $Q_c$ )  
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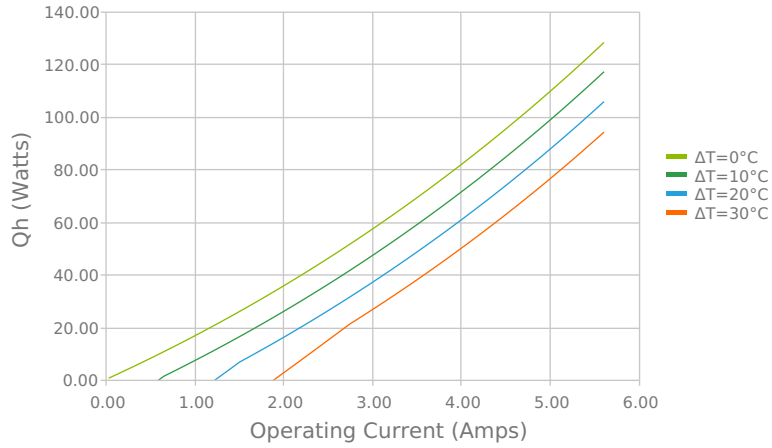
Coefficient of Performance (COP = Qc/Pin)  
 Tambient = 35°C | Tcontrol = 20°C



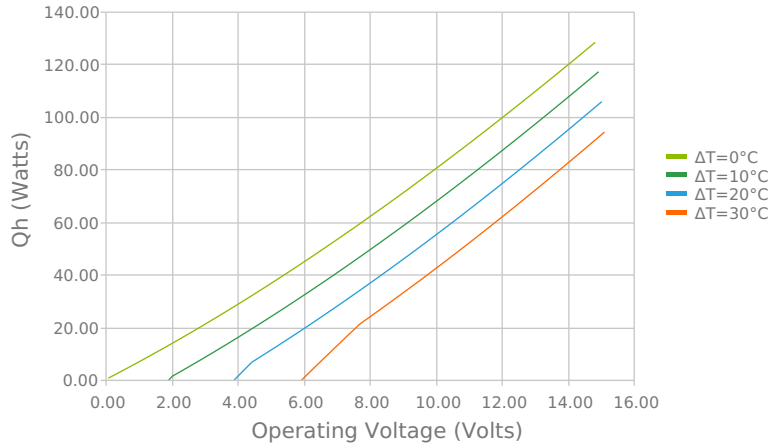
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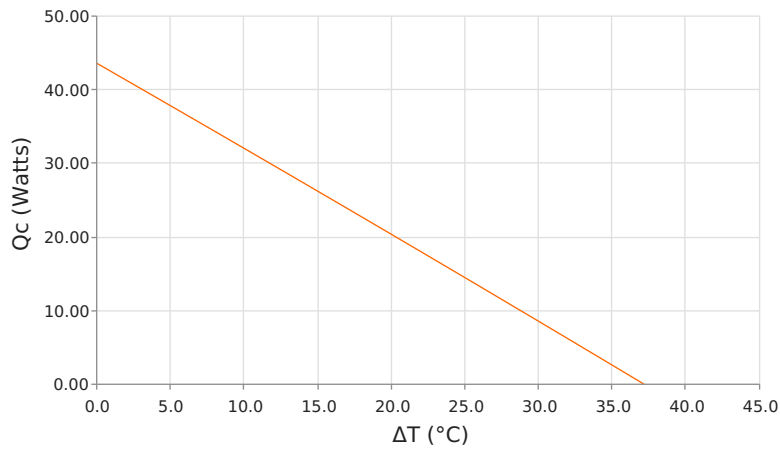
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Tambient = 35°C | Tcontrol = 20°C



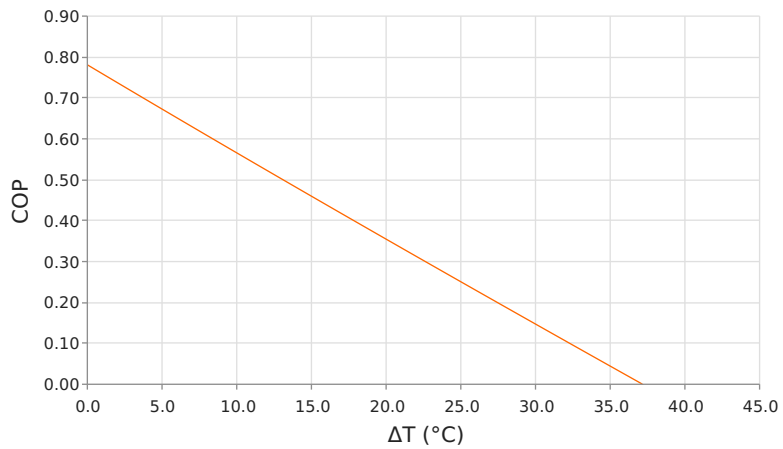
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Tambient = 35°C | Tcontrol = 20°C

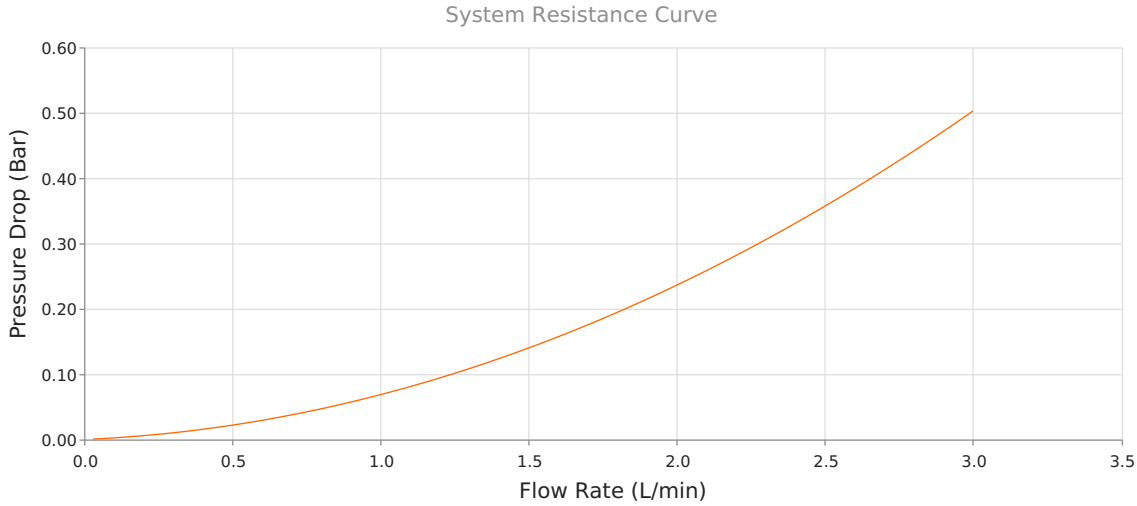


Heat Pumped at Cold Side (Qc)  
 Voperating = 12.03 Volts | Ioperating = 4.66 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Voperating = 12.03 Volts | Ioperating = 4.66 Amps



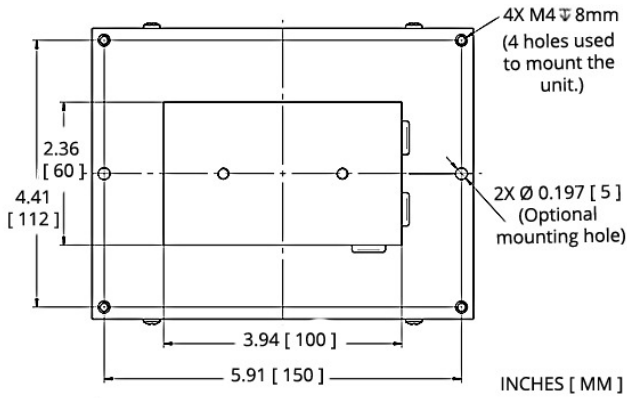


**SPECIFICATIONS**

- Heat Transfer Mechanism, Cold Side**
- Heat Transfer Mechanism, Hot Side**
- Operating Temperature Range**
- Supply Voltage**
- Current Draw**
- Power Supply**
- Performance Tolerance**
- Hi-Pot Testing**
- Fan MTBF**
- Over-Temp Thermostat (Hot and Cold Side Heat Sink)**
- Weight**
- Panel Mounting**

Liquid - Forced Convection
Air - Forced Convection
-10°C to 52°C
12.0 VDC nominal / 15.0 VDC maximum
3.7 A running / 4.3 A startup
73.0 Watts
10%
750 VDC
50,000 hours
75°C ±5°C (hot side heat sink)
1.50 kg
Flush Mount

**MOUNTING HOLE LOCATION**

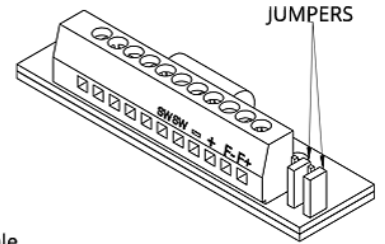


**ELECTRICAL CONNECTIONS**

- " + " : + TEM
- " - " : - TEM
- " F+ " : + FAN(S)
- " F- " : - FAN(S)

To use single supply:  
Lift the jumpers and rotate 90° to short-out the pin pairs.  
Connect the unit to " + " & " - ".

Warning: Single supply not applicable in heating mode or with PWM-regulation.



**NOTES**

<sup>1</sup>For indoor use only

<sup>2</sup>Turbulators are mounted inside liquid channels to create turbulent flow

<sup>3</sup>Cold block requires insulation to minimize moisture buildup under dew point conditions.

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