

**Liquid Series Thermoelectric Cooler Assembly**

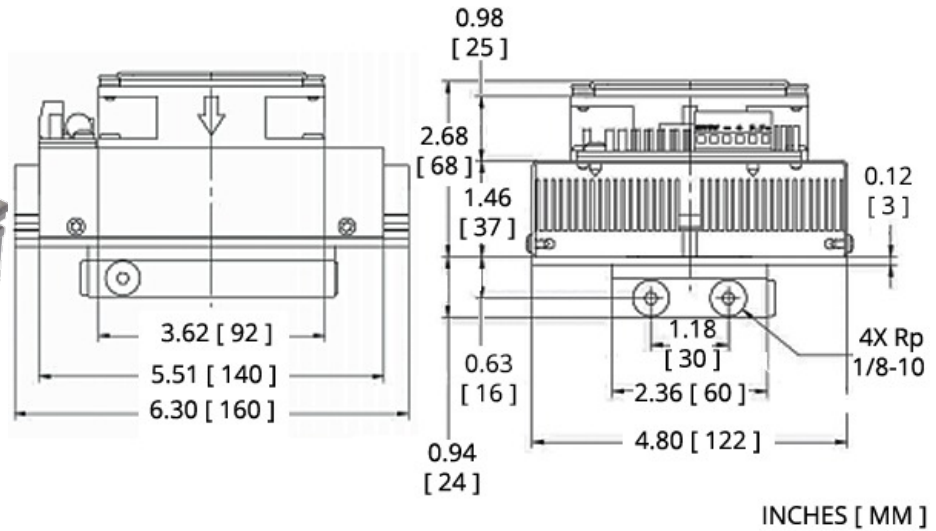
The LA-045-12-02 thermoelectric assembly (TEA) offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through a liquid heat exchanger and dissipated thru a high density heat sink equipped with an air ducted shroud and brand name fan. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. It has a maximum  $Q_c$  of 39 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 35 °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

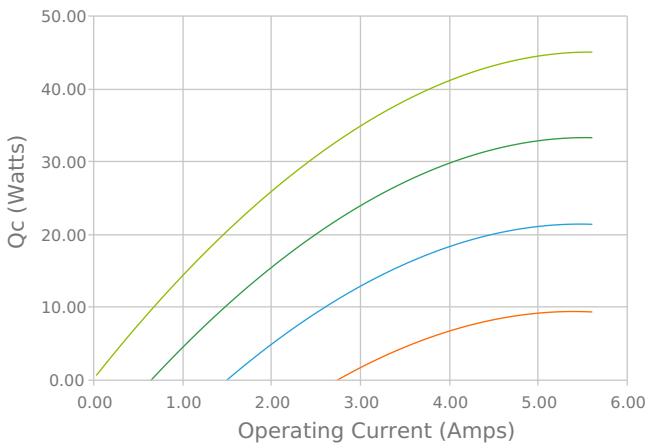
**Applications**

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

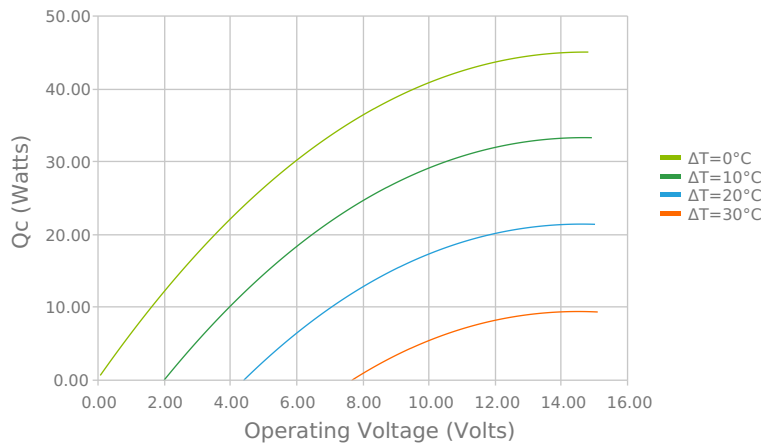


**ELECTRICAL AND THERMAL PERFORMANCE**

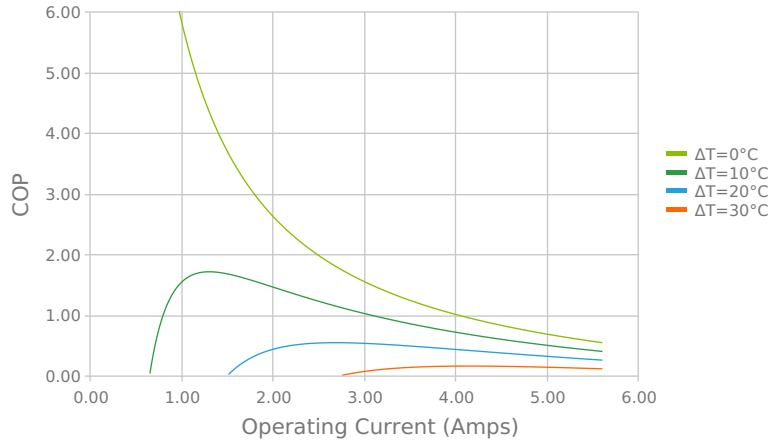
Heat Pumped at Cold Side ( $Q_c$ )  
 Tambient = 35°C | Tcontrol = 20°C



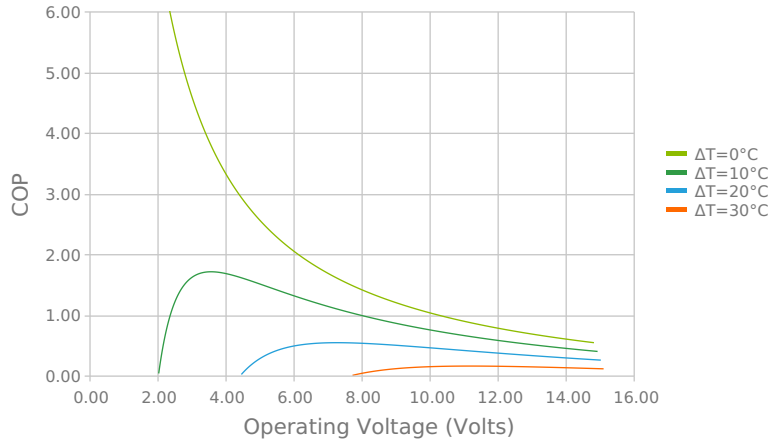
Heat Pumped at Cold Side ( $Q_c$ )  
 Tambient = 35°C | Tcontrol = 20°C



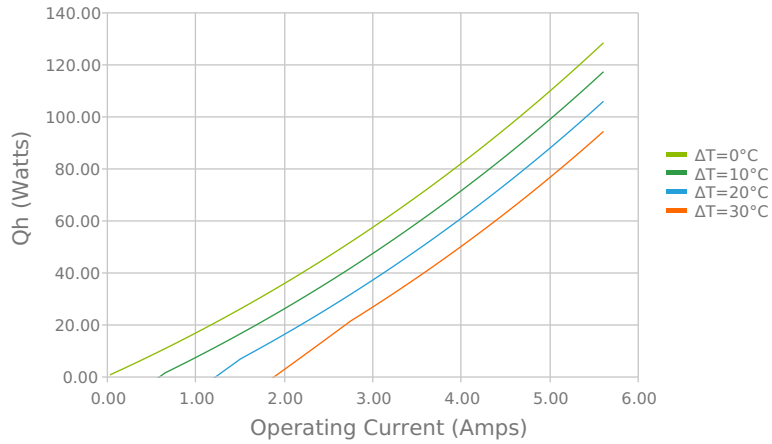
Coefficient of Performance (COP = Qc/Pin)  
 Tambient = 35°C | Tcontrol = 20°C



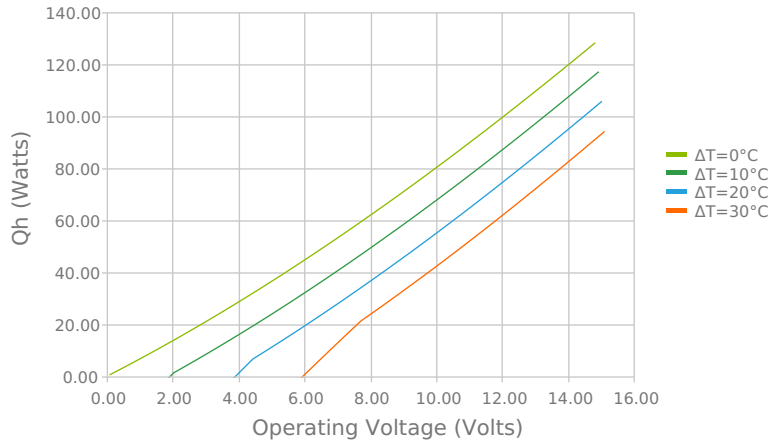
Coefficient of Performance (COP = Qc/Pin)  
 Tambient = 35°C | Tcontrol = 20°C



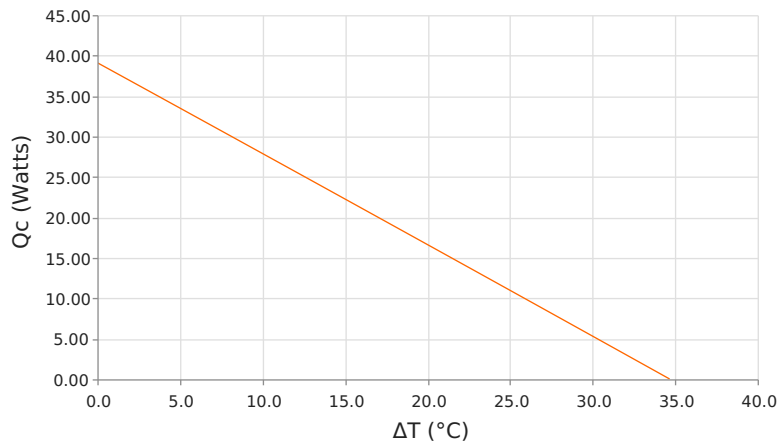
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Tambient = 35°C | Tcontrol = 20°C



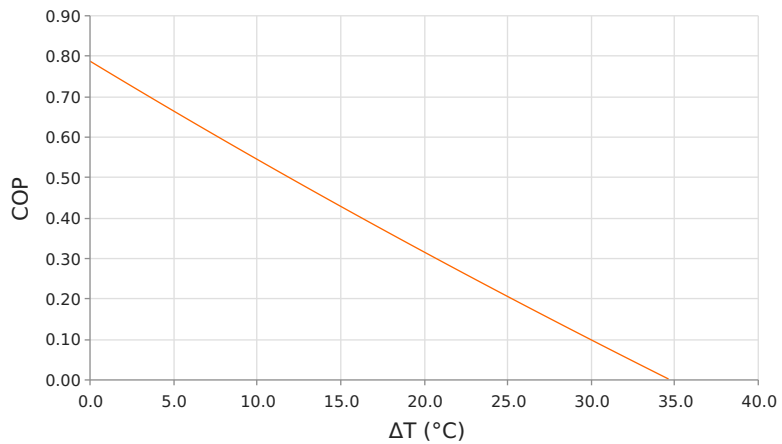
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Tambient = 35°C | Tcontrol = 20°C



Heat Pumped at Cold Side (Qc)  
 Voperating = 12 Volts | Ioperating = 4.7 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Voperating = 12 Volts | Ioperating = 4.7 Amps



## SPECIFICATIONS

**Operating Temperature Range**

-10 °C to 52°C

**Supply Voltage**

12.0 VDC nominal / 15.0 VDC maximum

**Current Draw**

3.7 A running / 4.3 A startup

**Power Supply**

73.0 Watts

**Performance Tolerance**

10%

**Fan MTBF**

50,000 hours

**Weight**

1.50 kg

## 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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