

### Liquid Series Thermoelectric Cooler Assembly

The LL-120-24-00 thermoelectric cooler assembly offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through one liquid heat exchanger and dissipated thru a second liquid heat exchanger. 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 122 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 42 °C at  $Q_c = 0$ . Heat exchangers are designed to accommodate distilled water with glycol. Corrosion resistant turbulators are enclosed inside channels to increase heat transfer. Mating port adaptors are sold separately.

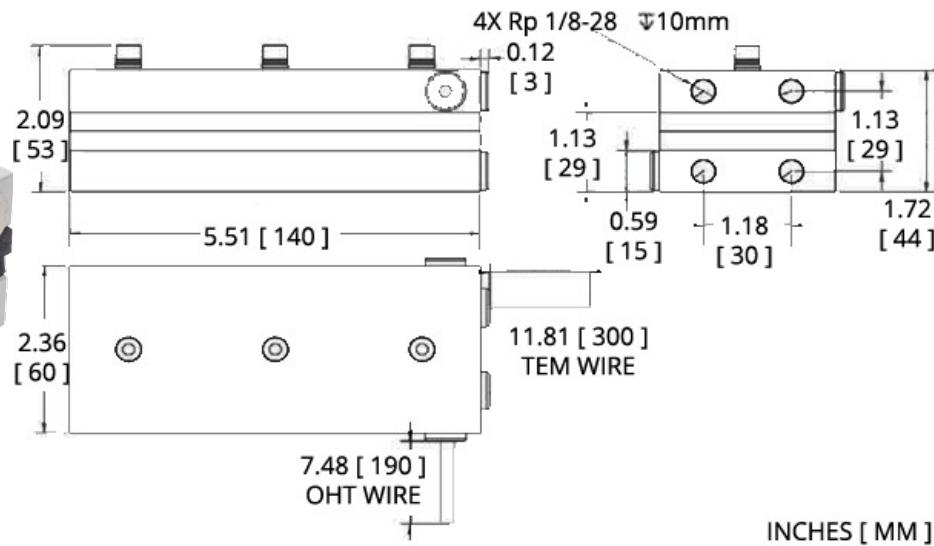


### Features

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

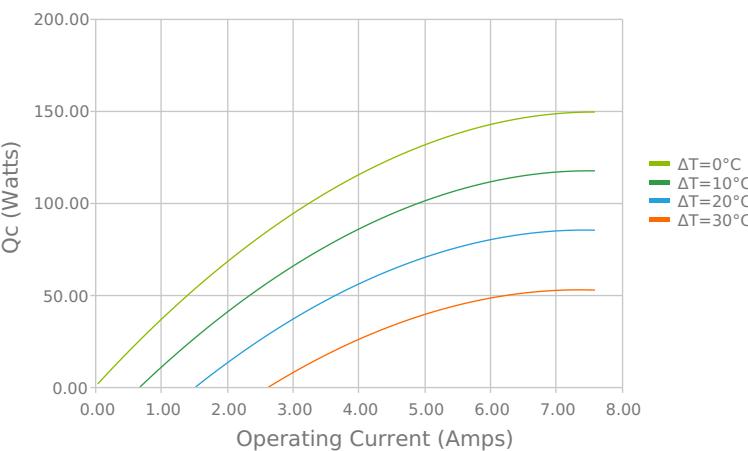
### Applications

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

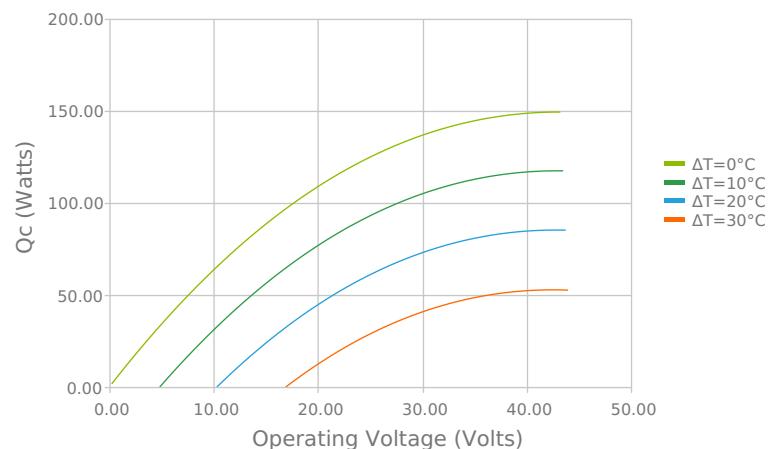


### ELECTRICAL AND THERMAL PERFORMANCE

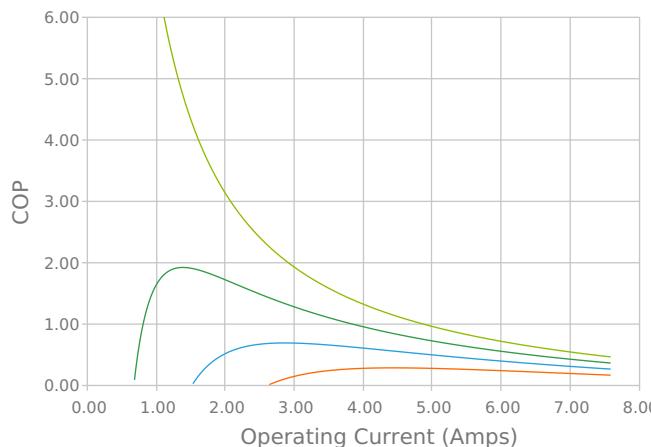
Heat Pumped at Cold Side ( $Q_c$ )  
Tambient = 35°C | Tcontrol = 20°C



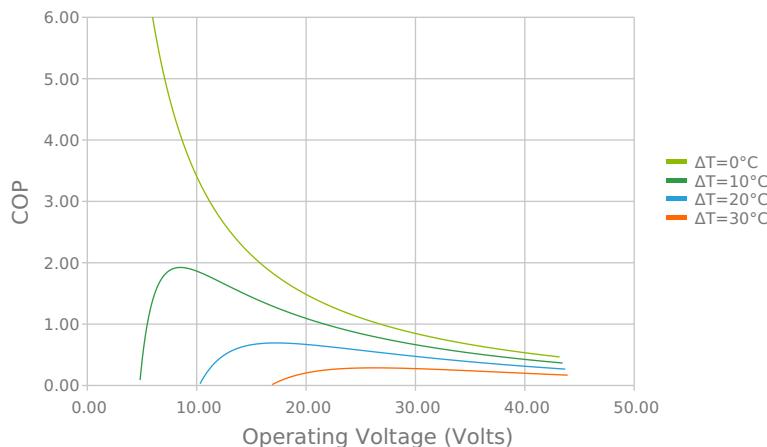
Heat Pumped at Cold Side ( $Q_c$ )  
Tambient = 35°C | Tcontrol = 20°C



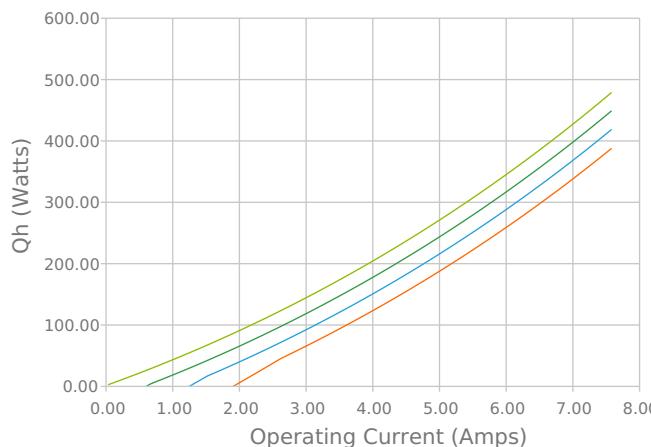
Coefficient of Performance (COP =  $Q_c/Pin$ )  
 Tambient = 35°C | Tcontrol = 20°C



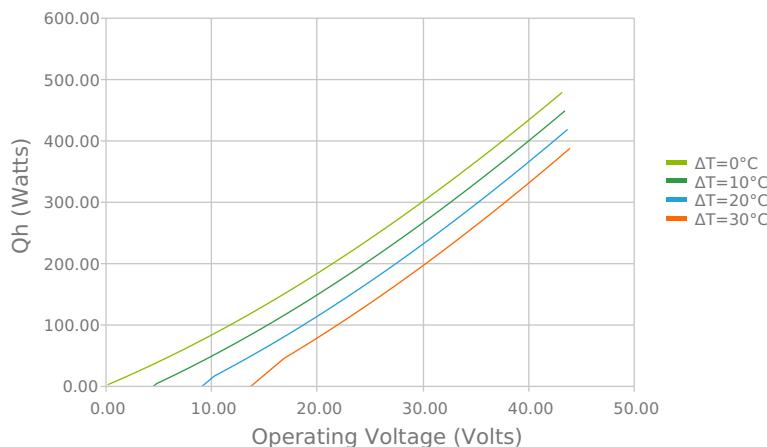
Coefficient of Performance (COP =  $Q_c/Pin$ )  
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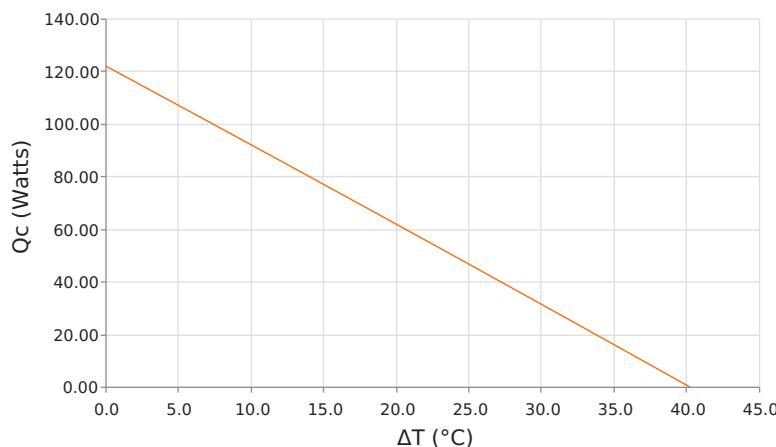
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + Pin$ )  
 Tambient = 35°C | Tcontrol = 20°C



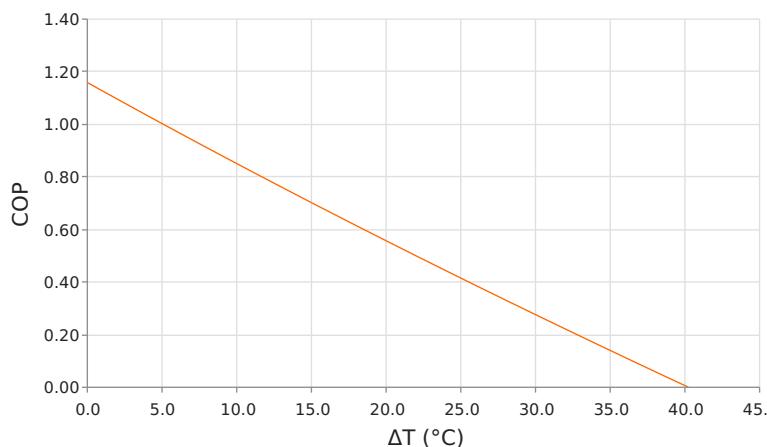
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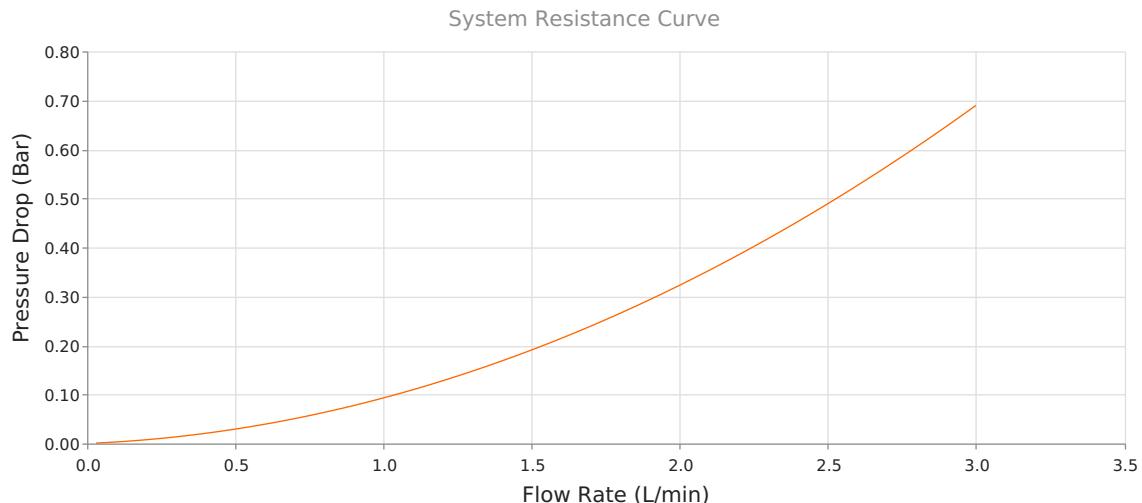


Heat Pumped at Cold Side ( $Q_c$ )  
 Voperating = 24.01 Volts | Ioperating = 4.39 Amps



Coefficient of Performance (COP =  $Q_c/Pin$ )  
 Voperating = 24.01 Volts | Ioperating = 4.39 Amps





## SPECIFICATIONS

**Operating Temperature Range**

-40°C to 62°C

**Supply Voltage**

24.0 VDC nominal / 28.0 VDC maximum

**Current Draw**

4.2 A running / 4.7 A startup

**Power Supply**

98.4 Watts

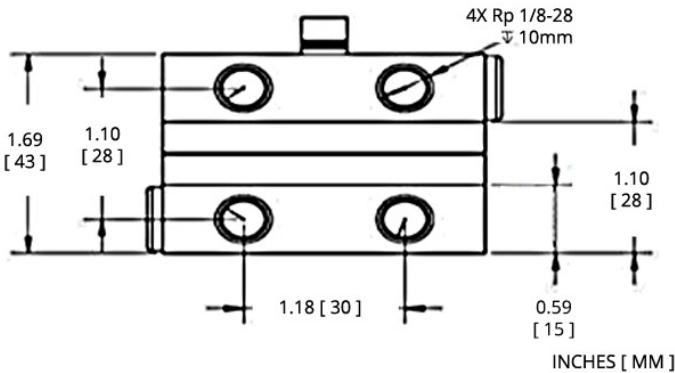
**Performance Tolerance**

10%

**Weight**

0.80 kg

## MOUNTING HOLE LOCATION



## ELECTRICAL CONNECTIONS

TEM+ : Red

TEM- : Black

Wire Size: 18 AWG

The overheat protection (OHT) bimetal thermostat has a maximum current of 8 Amps. For systems 8 Amps or less, the thermostat can be connected directly in series with thermoelectric modules (TEMs). Otherwise connect the TEMs to the power source through a relay of suitable rating which state is controlled with the bimetal thermostat.

## 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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Date: 06/22/2021