

## Liquid Series Thermoelectric Cooler Assembly

The LA-115-24-02 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 113 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.

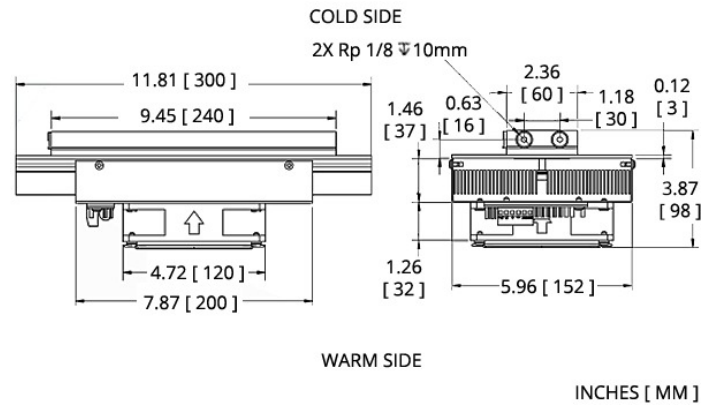


## Features

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

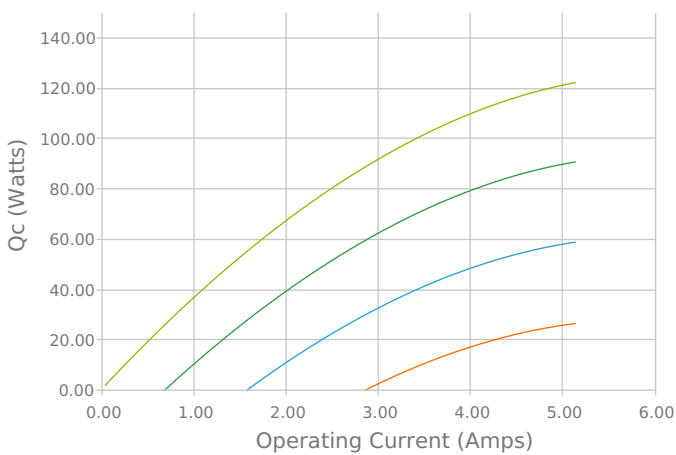
## Applications

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

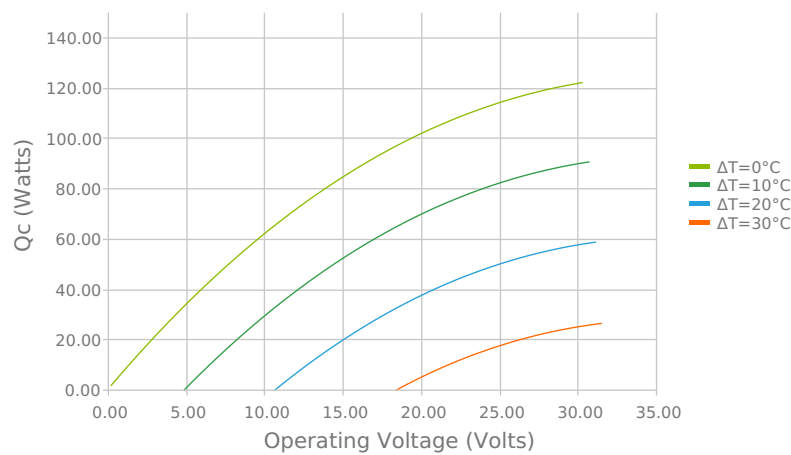


## Electrical and Thermal Performance

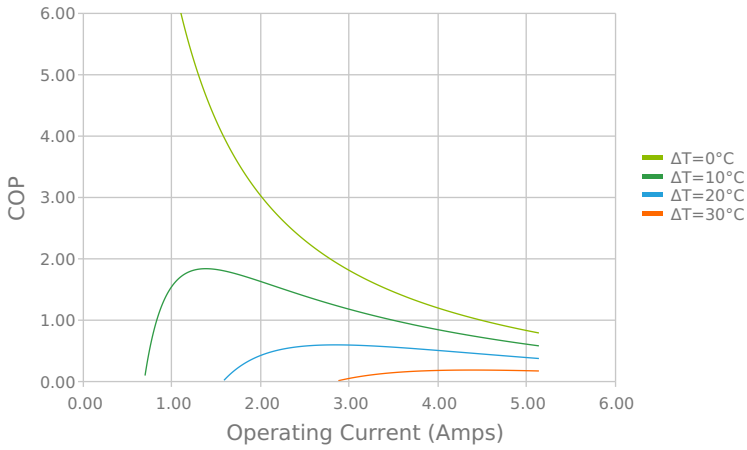
Heat Pumped at Cold Side ( $Q_c$ )  
Tambient = 35°C



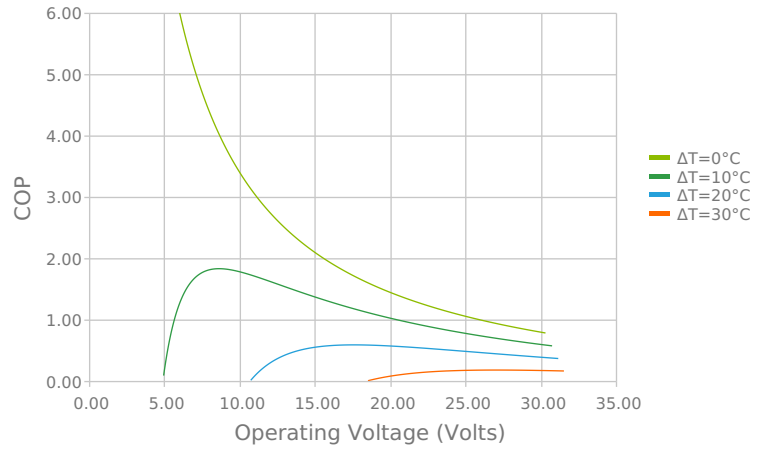
Heat Pumped at Cold Side ( $Q_c$ )  
Tambient = 35°C



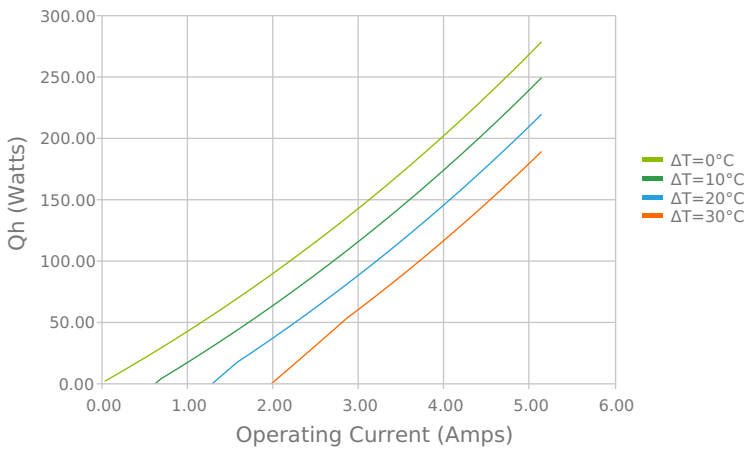
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
Tambient = 35°C



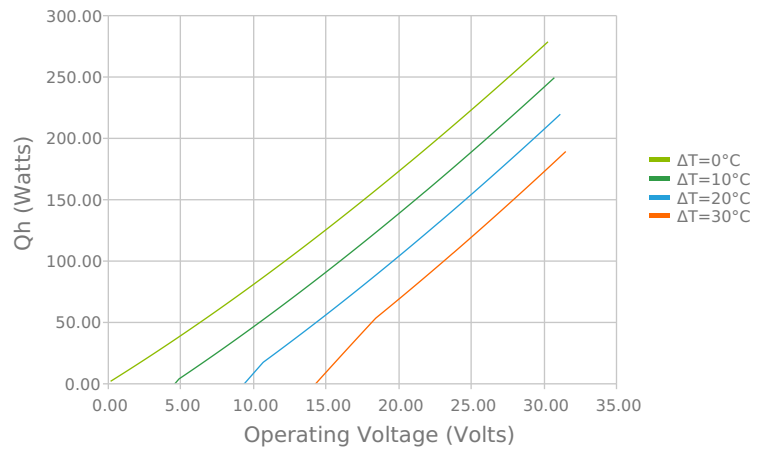
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
Tambient = 35°C



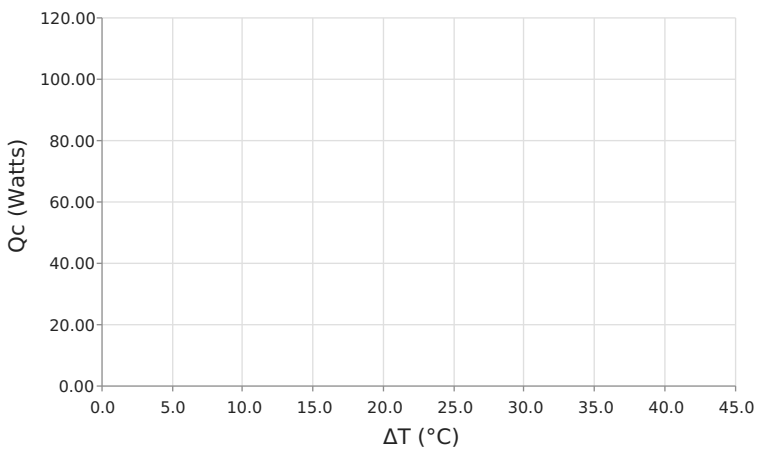
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
Tambient = 35°C



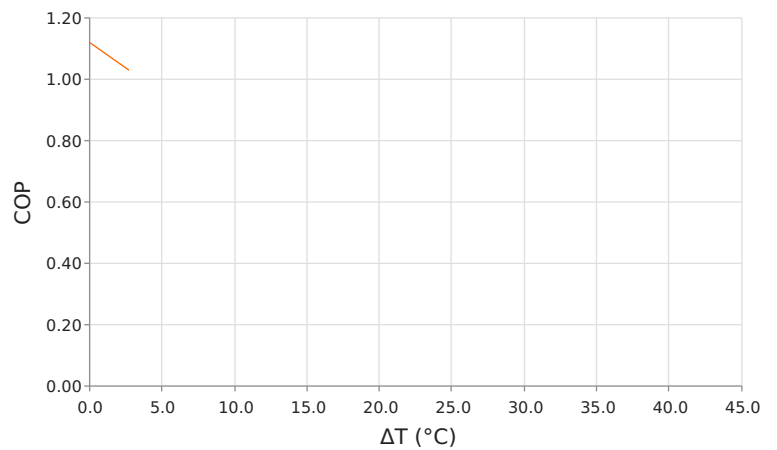
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
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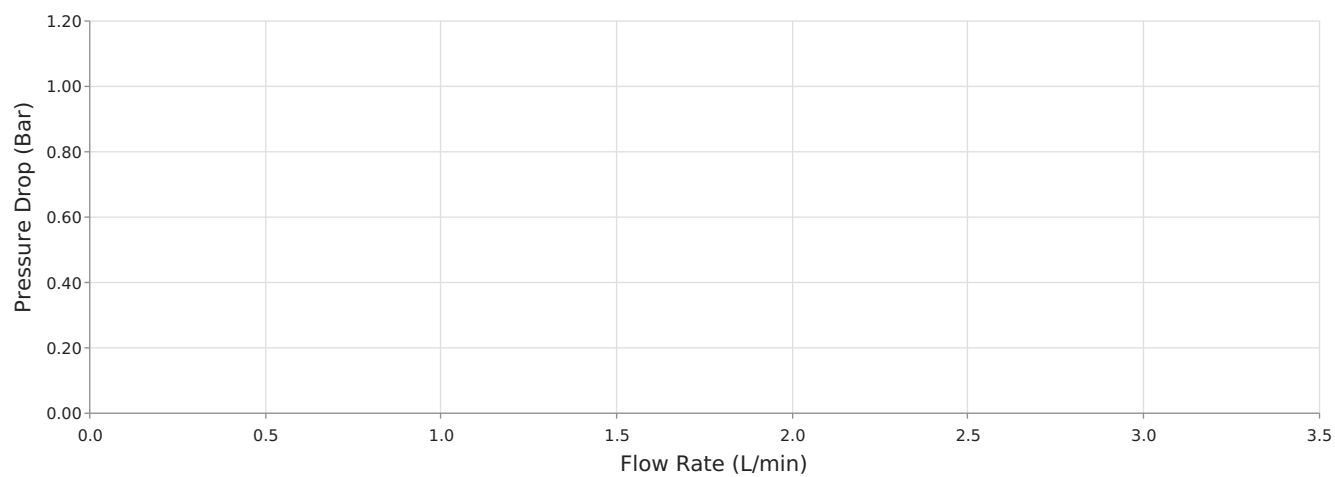
Heat Pumped at Cold Side ( $Q_c$ )  
Voperating = 24 Volts | Ioperating = 4.17 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
Voperating = 24 Volts | Ioperating = 4.17 Amps



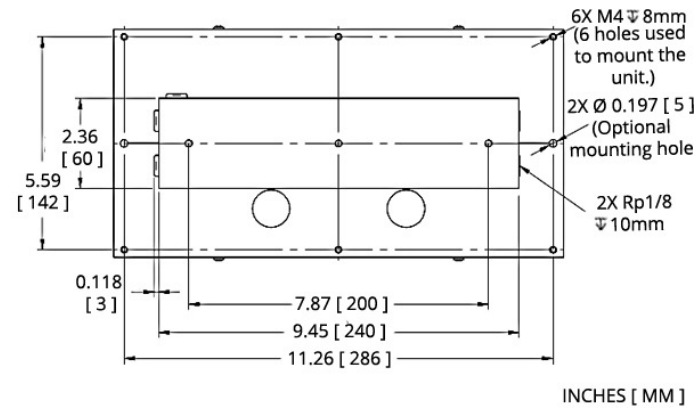
System Resistance Curve



Specifications

|  |                                     |
|--|-------------------------------------|
| Heat Transfer Mechanism, Cold Side                 | Liquid - Forced Convection          |
| Heat Transfer Mechanism, Hot Side                  | Air - Forced Convection             |
| Operating Temperature Range                        | -10°C to 47°C                       |
| Supply Voltage                                     | 24.0 VDC nominal / 30.0 VDC maximum |
| Current Draw                                       | 5.3 A running / 6.6 A startup       |
| Power Supply                                       | 139.0 Watts                         |
| Performance Tolerance                              | 10%                                 |
| Hi-Pot Testing                                     | 750 VDC                             |
| Fan MTBF   | 50000 hours                         |
| Over-Temp Thermostat (Hot and Cold Side Heat Sink) | 75°C ±5°C (hot side heat sink)      |
| Weight   | 3.20 kg                             |
| Panel Mounting                                     | Flush Mount                         |

## Mounting Hole Location

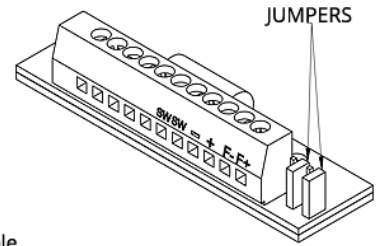


# Electrical Connections

- " + ": + 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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