

Liquid Series Thermoelectric Cooler Assembly

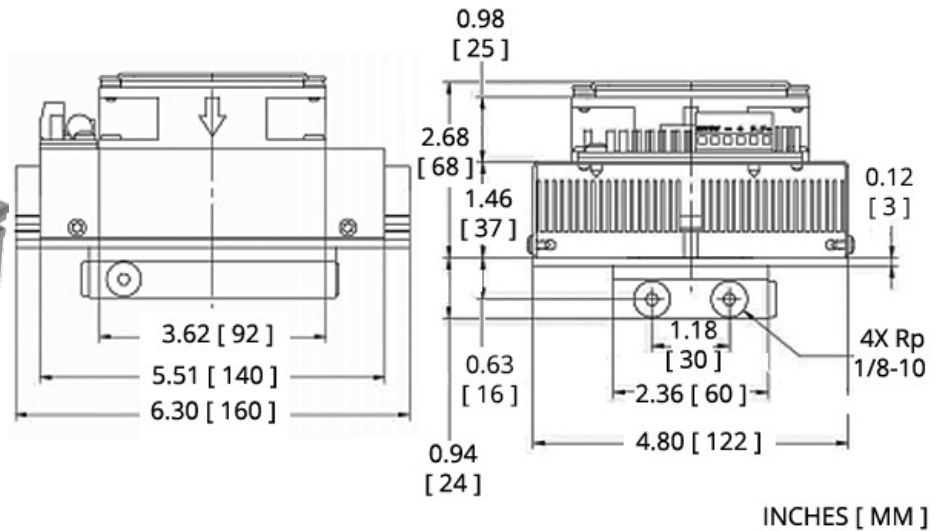
The LA-045-12-02 thermoelectric cooler assembly offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through a liquid heat exchanger and dissipated thru a high density heat sink equipped with an air ducted shroud and brand name fan. The thermoelectric 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 ΔT 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

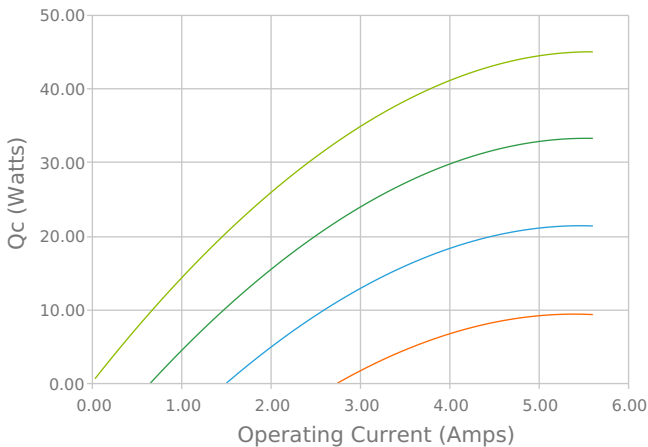
Applications

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

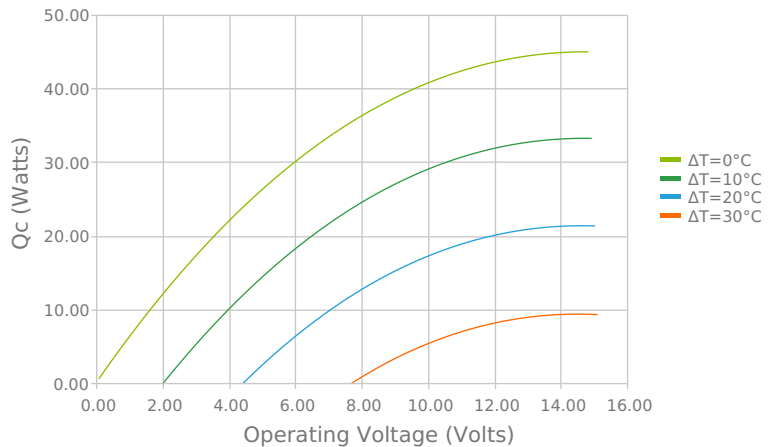


ELECTRICAL AND THERMAL PERFORMANCE

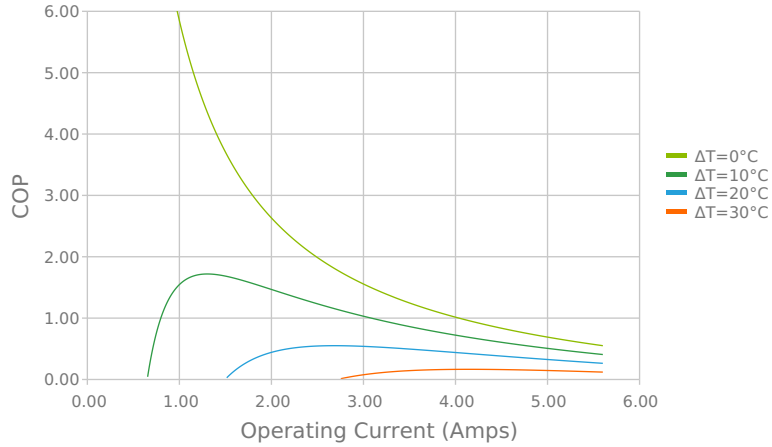
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ C$ | $T_{control} = 20^\circ C$



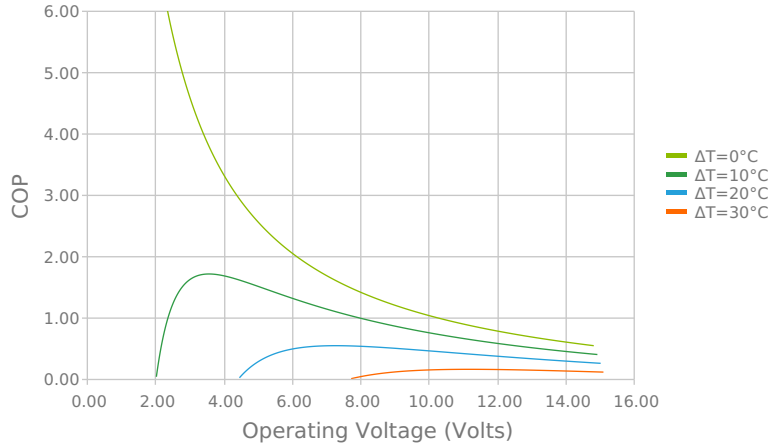
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ C$ | $T_{control} = 20^\circ C$



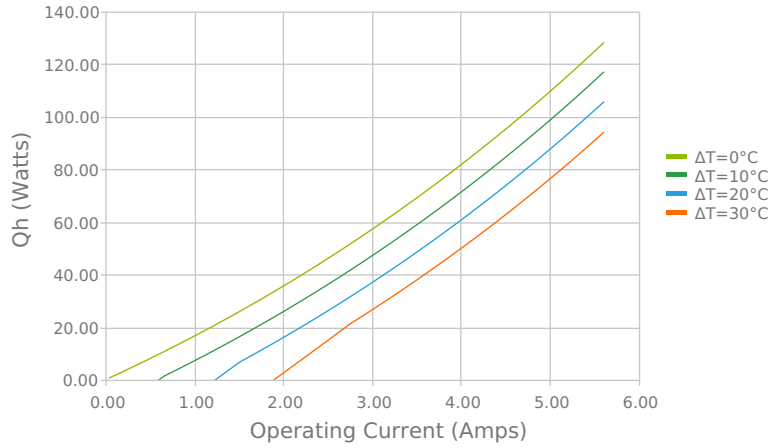
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



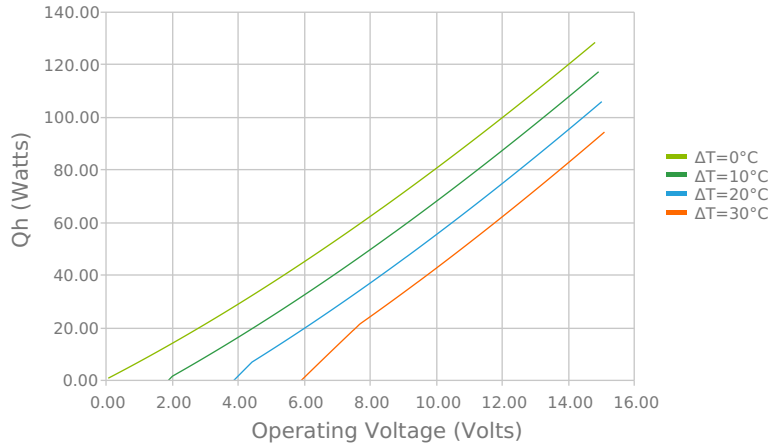
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



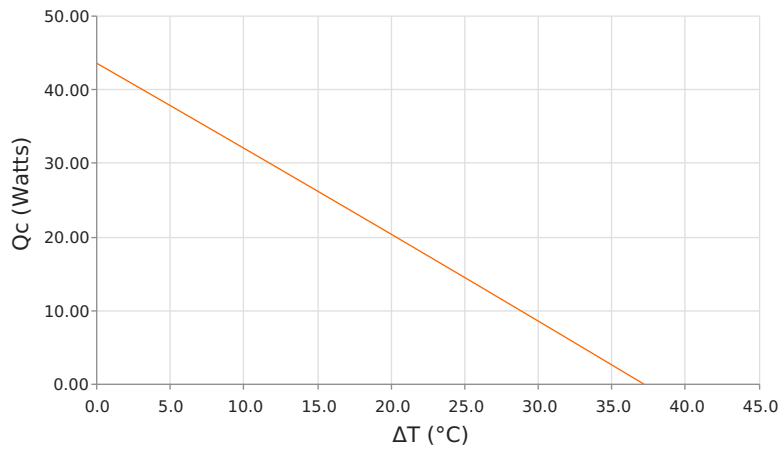
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



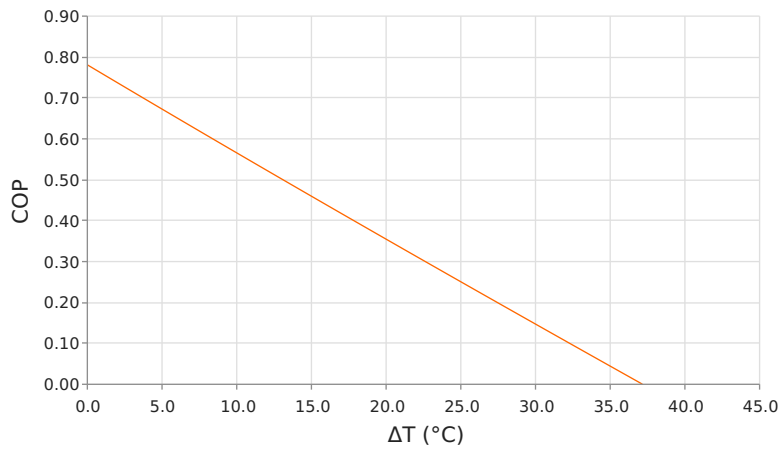
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
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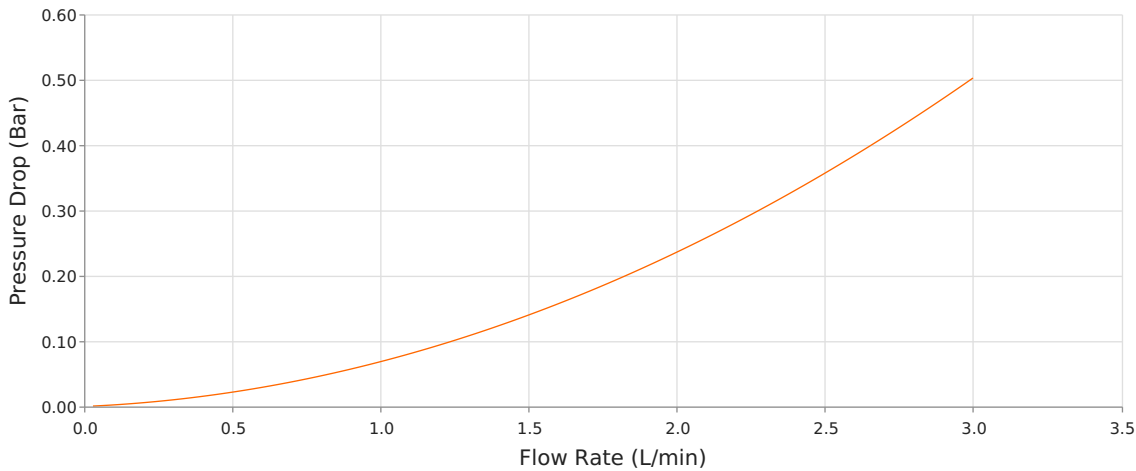
Heat Pumped at Cold Side (Qc)
 Voperating = 12.03 Volts | Ioperating = 4.66 Amps



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



System Resistance Curve

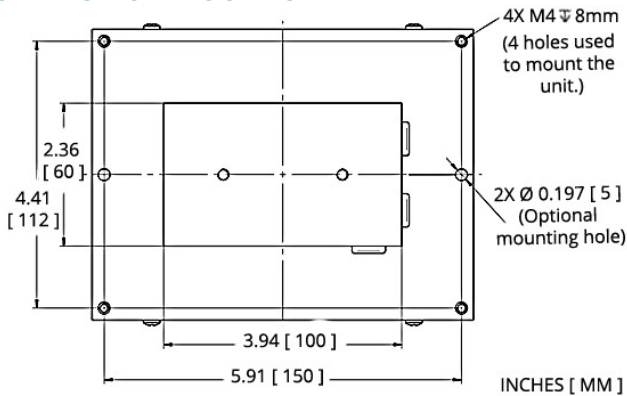


SPECIFICATIONS

- Operating Temperature Range**
- Supply Voltage**
- Current Draw**
- Power Supply**
- Performance Tolerance**
- Fan MTBF**
- Weight**

-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%
50,000 hours
1.50 kg

MOUNTING HOLE LOCATION

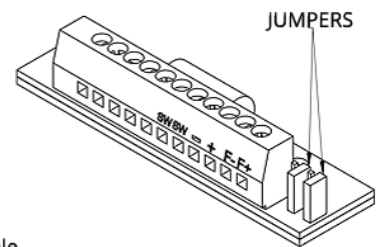


ELECTRICAL CONNECTIONS

- " + " : + 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

- ¹For indoor use only
- ²Turbulators are mounted inside liquid channels to create turbulent flow
- ³Cold block requires insulation to minimize moisture buildup under dew point conditions.

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Date: 06/07/2021