

Liquid Series Thermoelectric Cooler Assembly

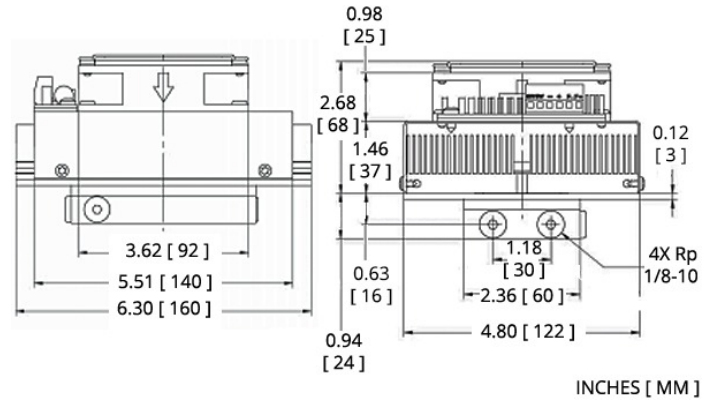
The LA-045-24-02 thermoelectric cooler assembly offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through a liquid heat exchanger and dissipated thru a high density heat sink equipped with an air ducted shroud and brand name fan. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. It has a maximum Q_c of 47 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

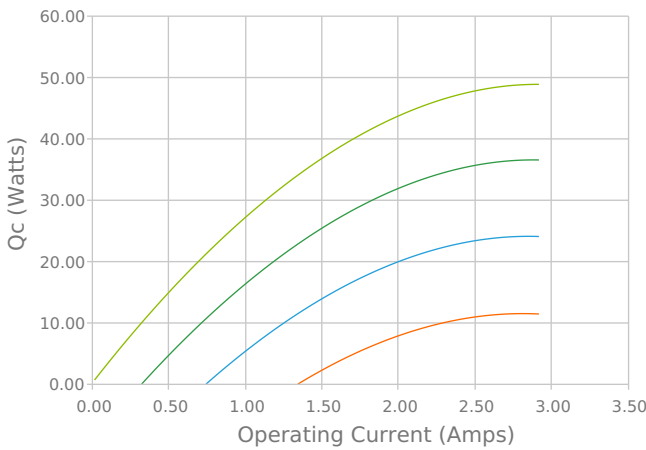
Applications

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

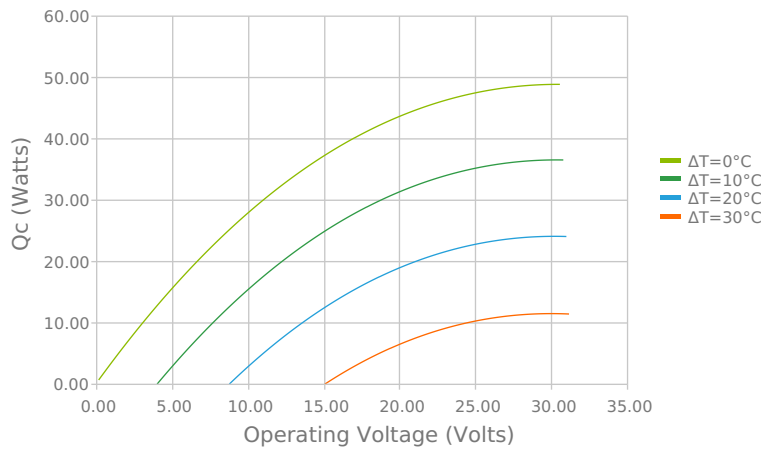


ELECTRICAL AND THERMAL PERFORMANCE

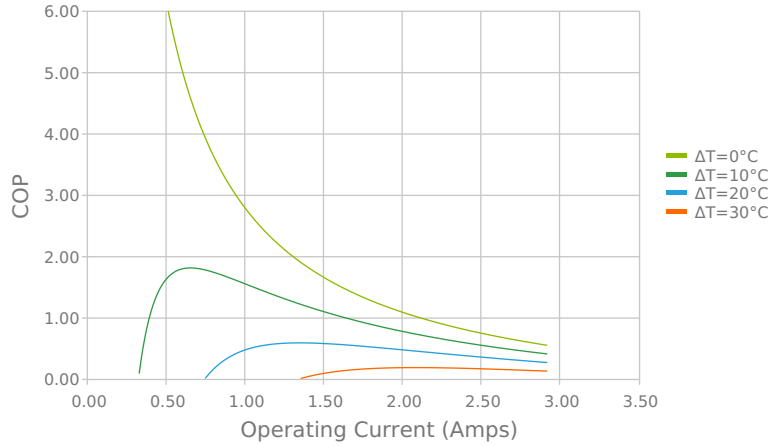
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ C$ | $T_{control} = 20^\circ C$



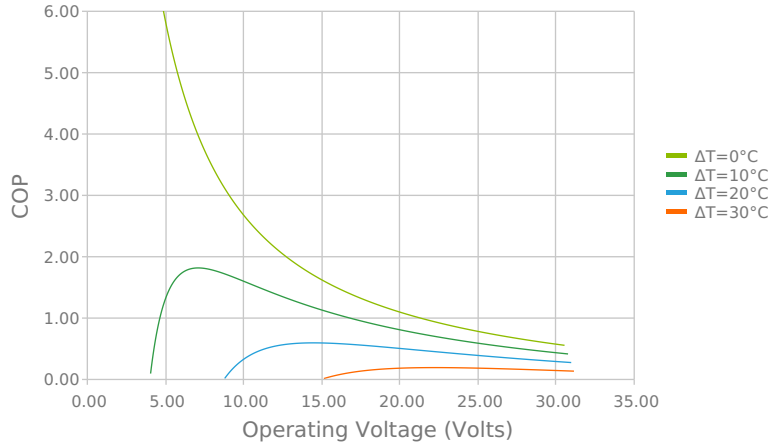
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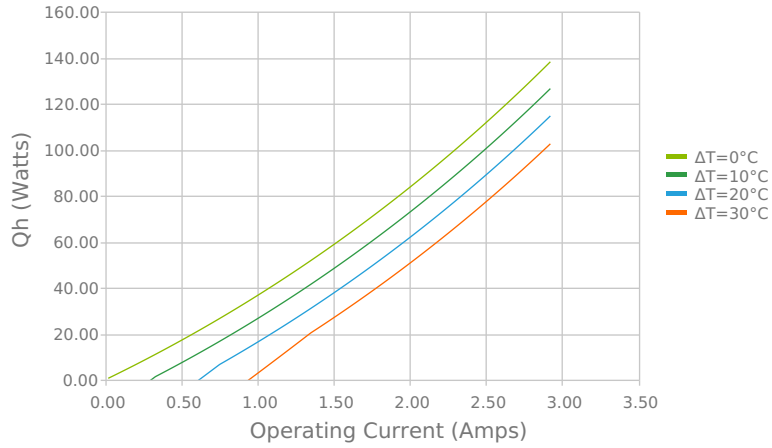
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



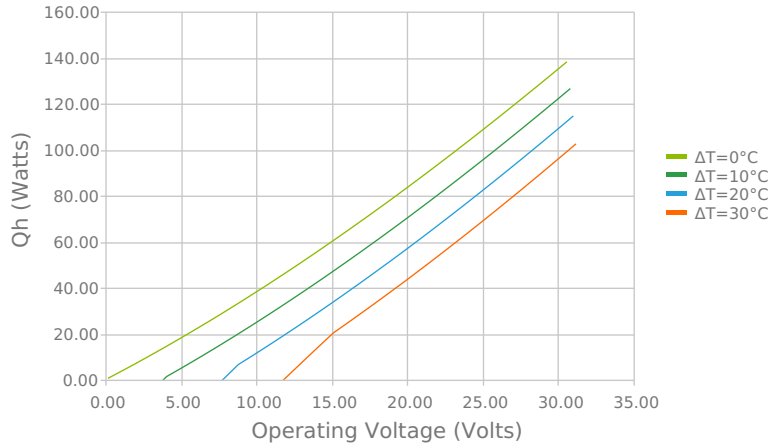
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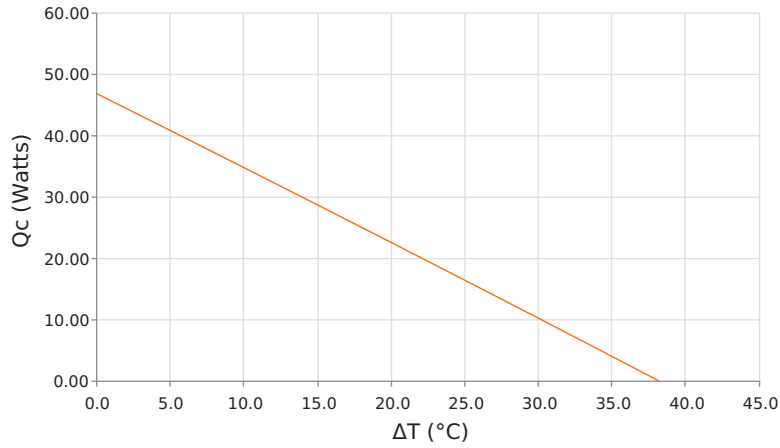
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



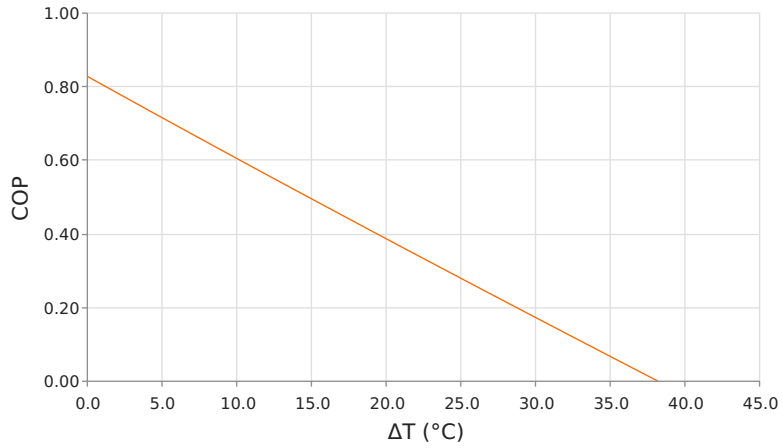
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C

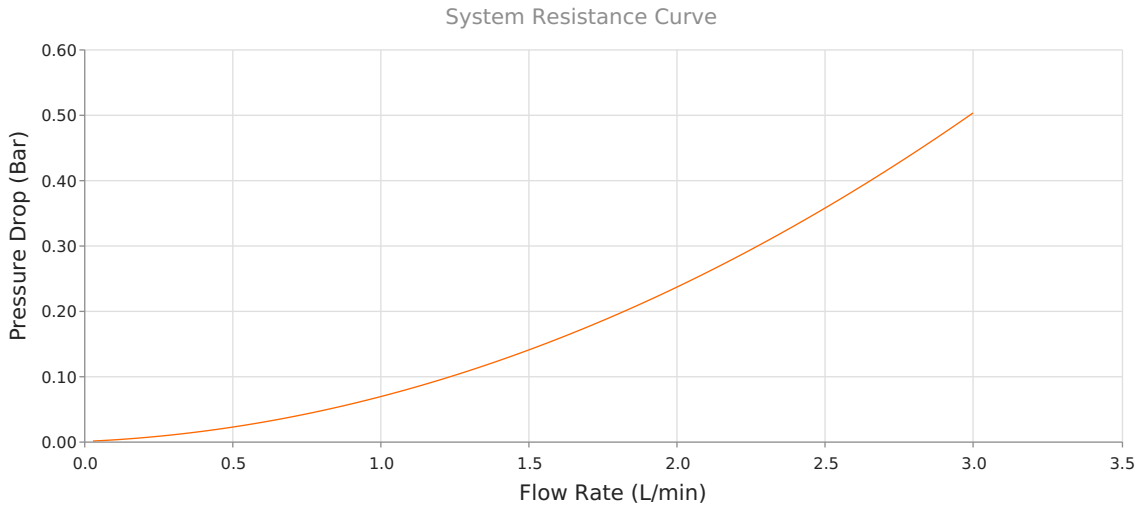


Heat Pumped at Cold Side (Qc)
 Voperating = 24.06 Volts | Ioperating = 2.36 Amps



Coefficient of Performance (COP = Qc/Pin)
 Voperating = 24.06 Volts | Ioperating = 2.36 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

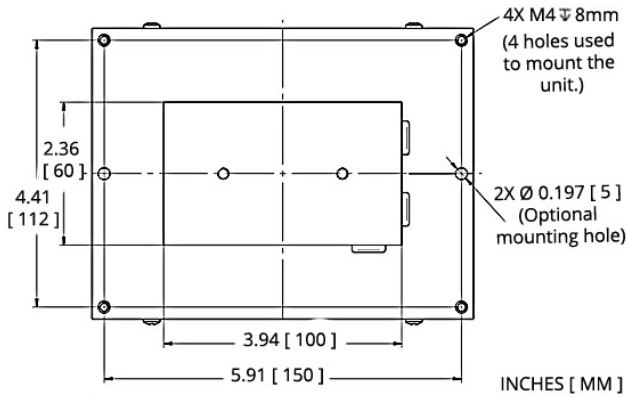
Over-Temp Thermostat (Hot and Cold Side Heat Sink)

Weight

Panel Mounting

Liquid - Forced Convection
Air - Forced Convection
-10°C to 48°C
24.0 VDC nominal / 30.0 VDC maximum
2.8 A running / 3.2 A startup
60.0 Watts
10%
750 VDC
50,000 hours
75°C ±5°C (hot side heat sink)
1.30 kg
Flush Mount

MOUNTING HOLE LOCATION

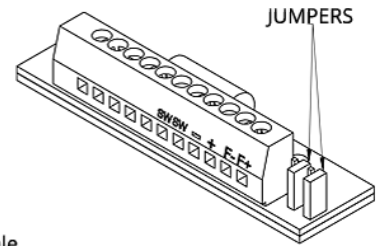


ELECTRICAL CONNECTIONS

- " + " : + 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

- 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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