Liquid Series Thermoelectric Cooler Assembly

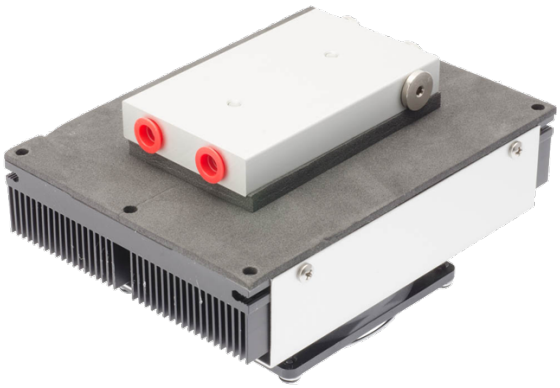
The LA-045-12-02 thermoelectric cooler assembly offers dependable, compact performance by cooling objects via liquid to transfer heat. Heat is absorbed through a liquid heat exchanger and dissipated thru a high density heat sink equipped with an air ducted shroud and brand name fan. The thermoelectric modules are custom designed to achieve a high coefficient of performance (COP) to minimize power consumption. It has a maximum Qc of 43 Watts when ΔT = 0 and a maximum ΔT of 42 °C at Qc = 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.

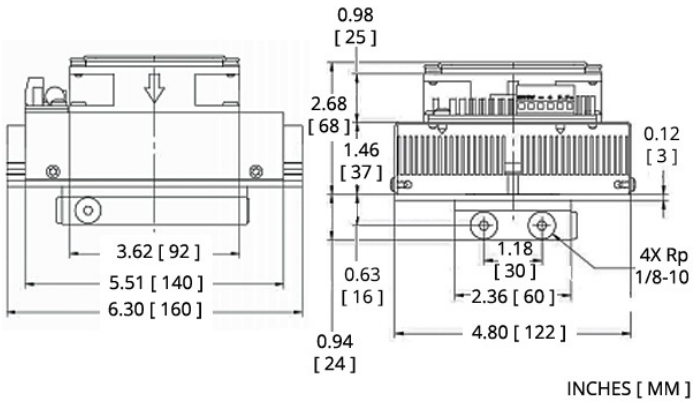
Features

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

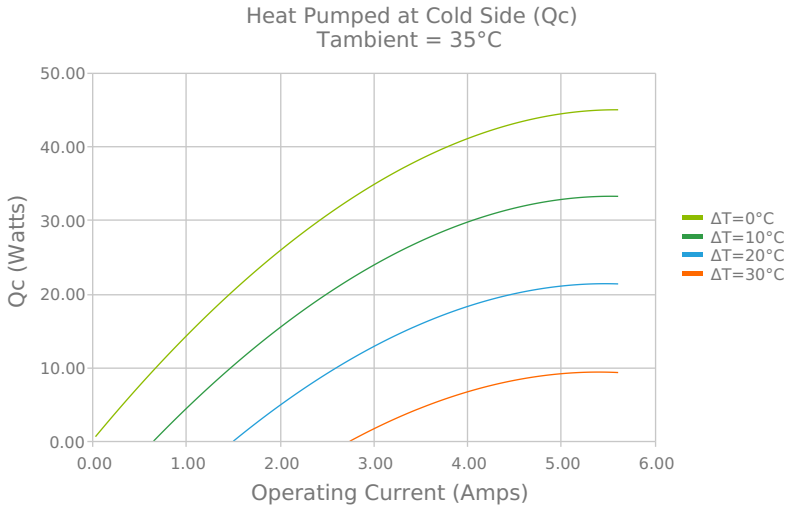
Applications

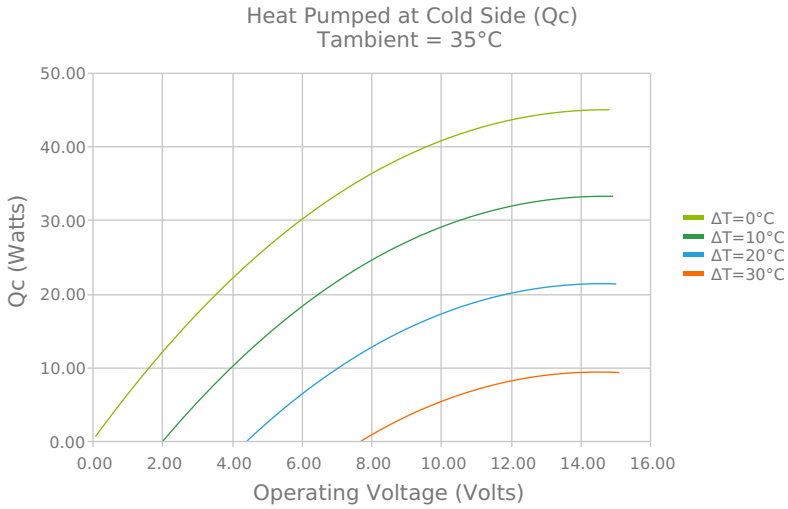
- Medical Diagnostics
- Industrial Lasers
- Medical Lasers
- Analytical Instrumentation



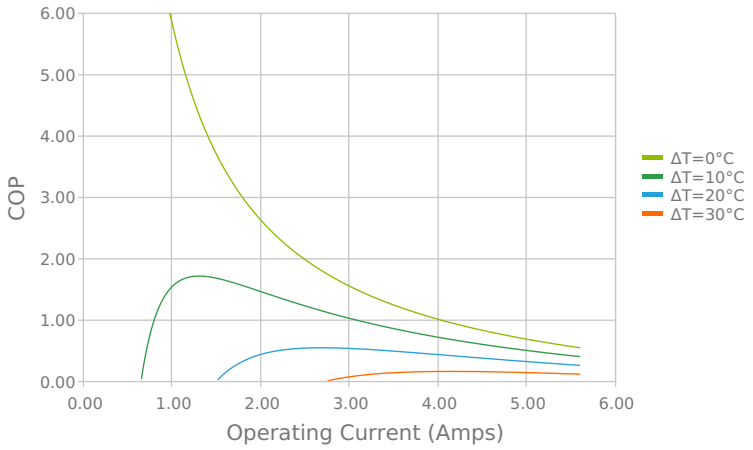


Electrical and Thermal Performance





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



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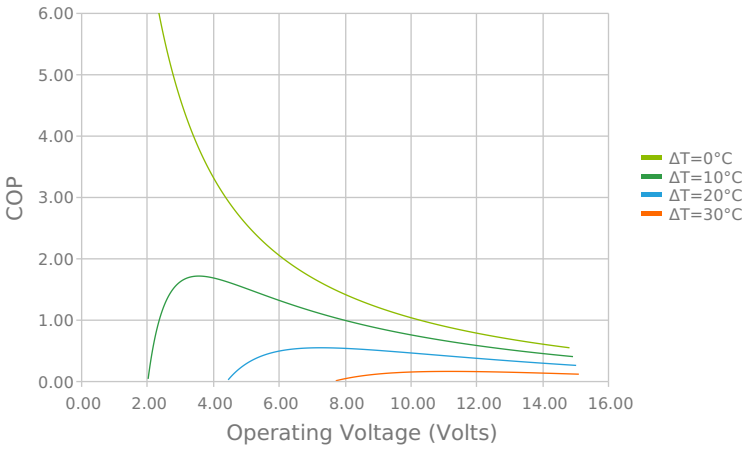
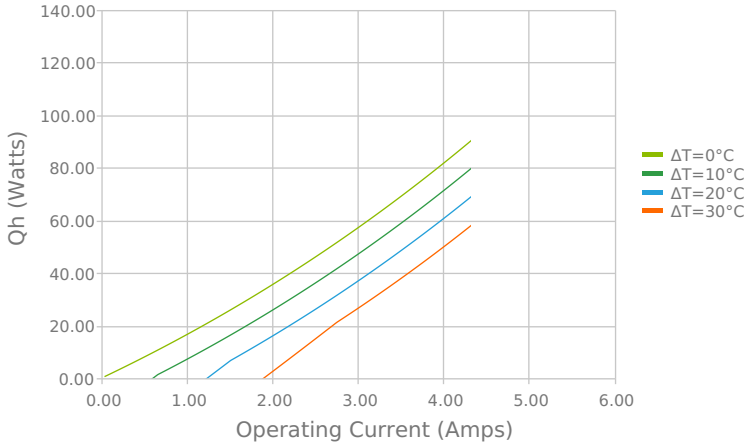


Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Tambient = 35°C



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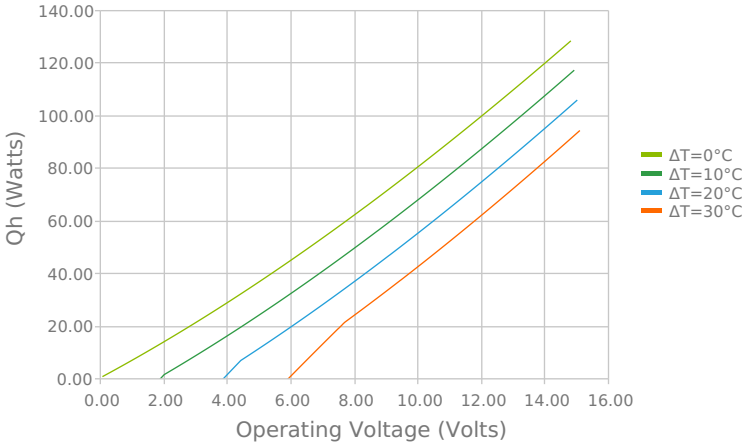
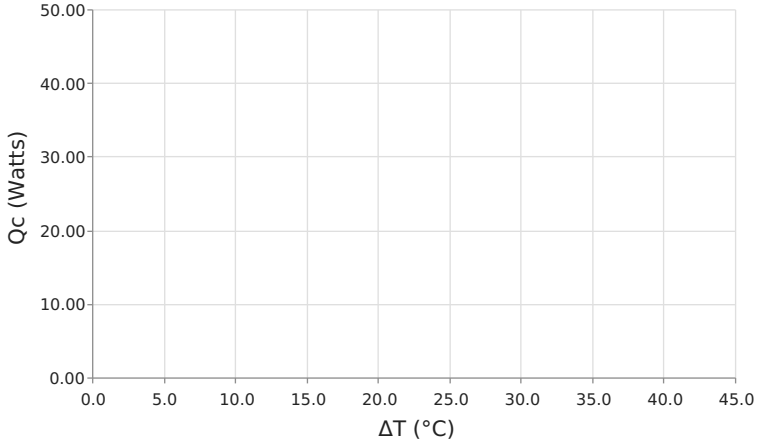


Heat Pumped at Cold Side (Qc)
Voperating = 12 Volts | Ioperating = 4.65 Amps



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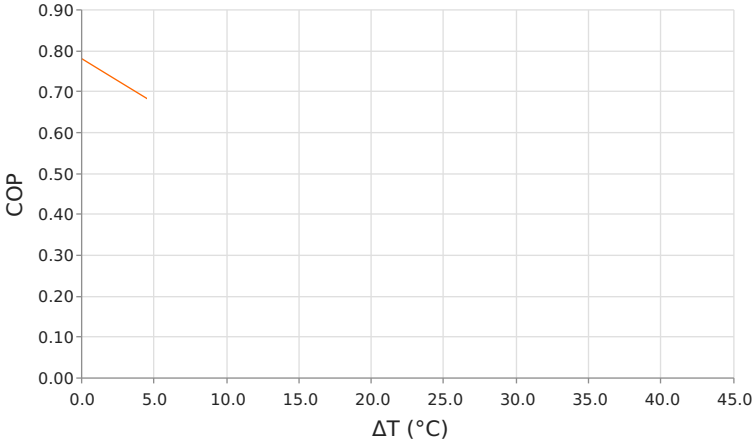
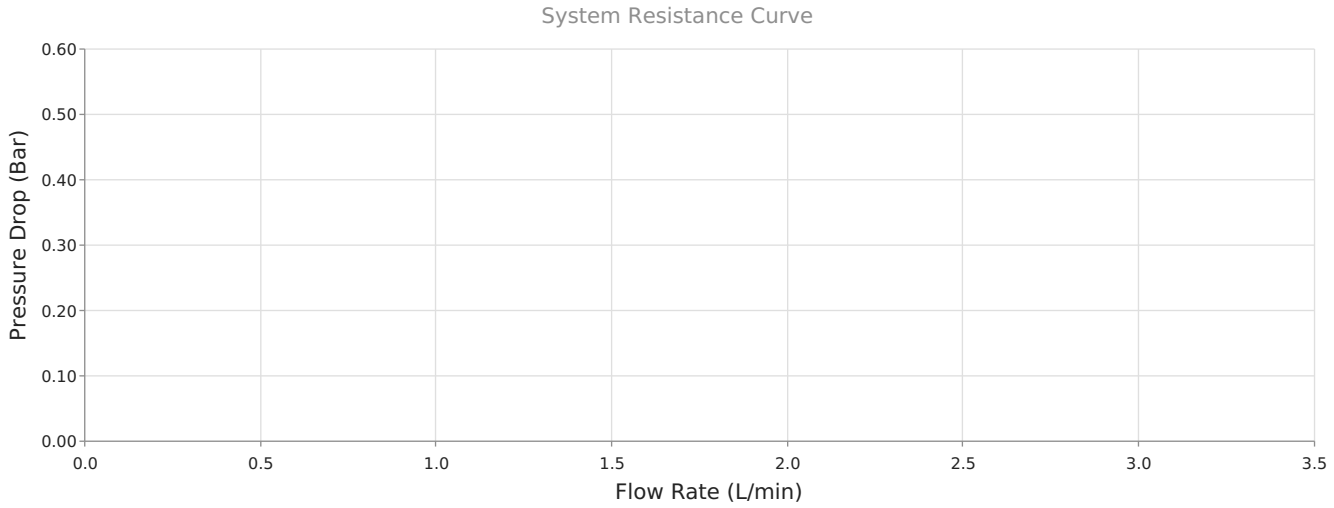
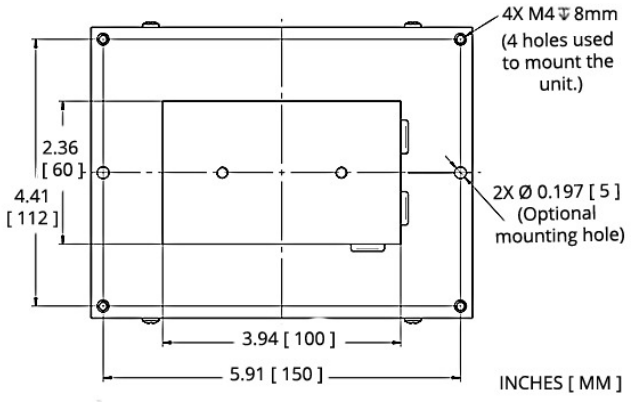




Specifications

Heat Transfer Mechanism, Cold Side	Liquid - Forced Convection
Heat Transfer Mechanism, Hot Side	Air - Forced Convection
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%
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	1.50 kg
Panel Mounting	Flush Mount

Mounting Hole Location

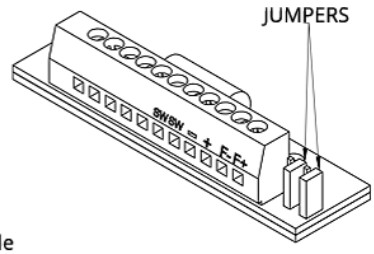


Electrical Connections

" + ": + 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

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

Revision: 00 Date: 06-01-2022

Print Date: 05-12-2025