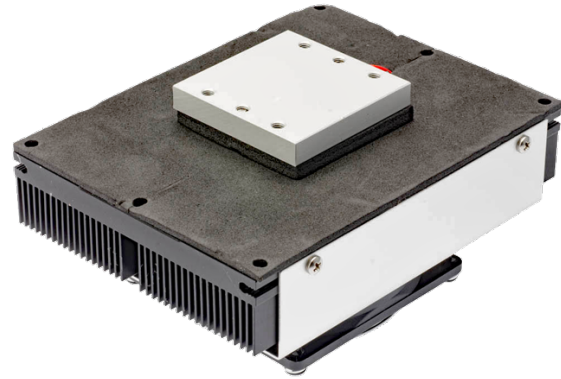


PowerCool Series Thermoelectric Cooler Assembly

The DA-045-12-02 is a Direct-to-Air Thermoelectric Cooler Assembly that uses impingement flow to transfer heat. It offers dependable, compact performance by cooling objects via conduction. Heat is absorbed through a cold plate and dissipated thru a high density heat exchanger equipped with an air ducted shroud and brand name fan. It has a maximum Q_c of 48 Watts when $\Delta T = 0$ and a maximum ΔT of 50 °C at $Q_c = 0$.

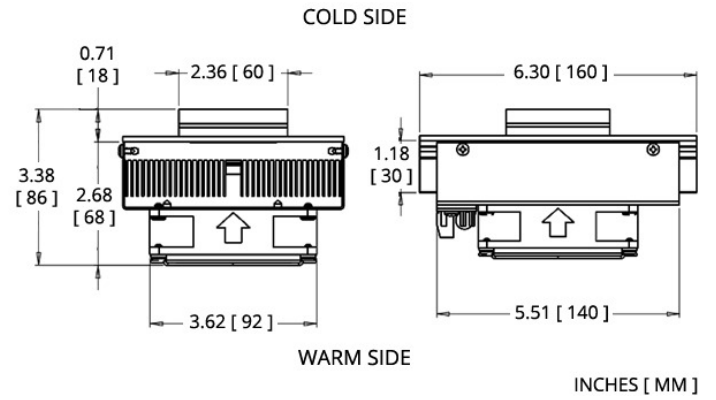


Features

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

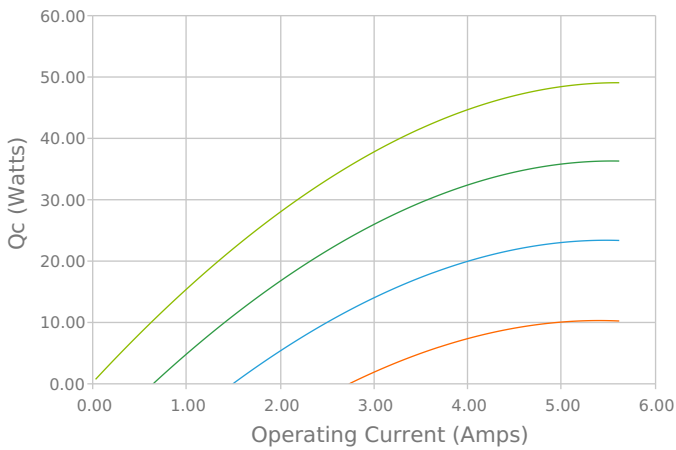
Applications

- Medical Diagnostic and Analytical Instrumentation
- Thermoelectric Coolers and Assemblies for Medical Applications
- Liquid Cooling Options for PET and SPECT Scanners
- Cooling for Centrifuges
- High-Performance Liquid Chromatography (HPLC)
- Heating and Cooling for Liquid Chromatography Systems

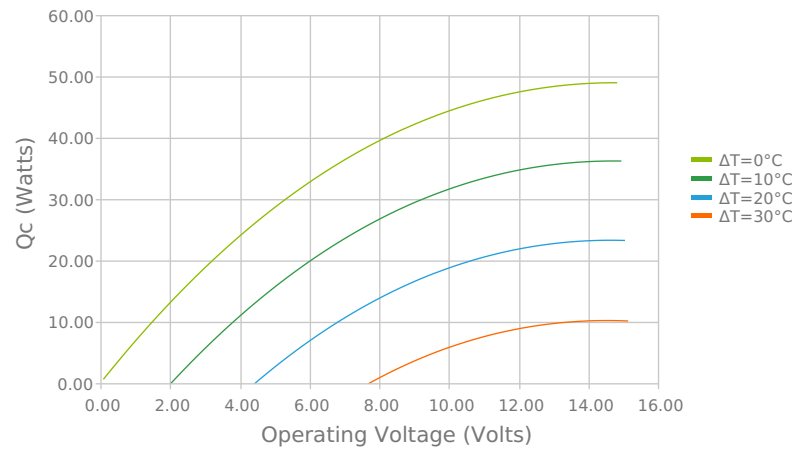


Electrical and Thermal Performance

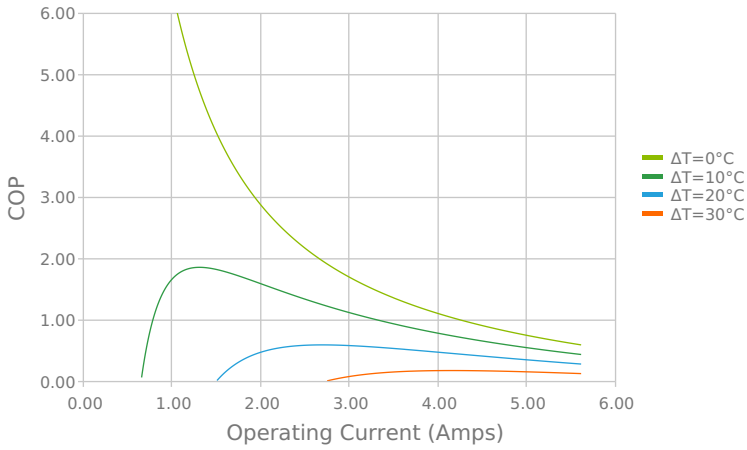
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



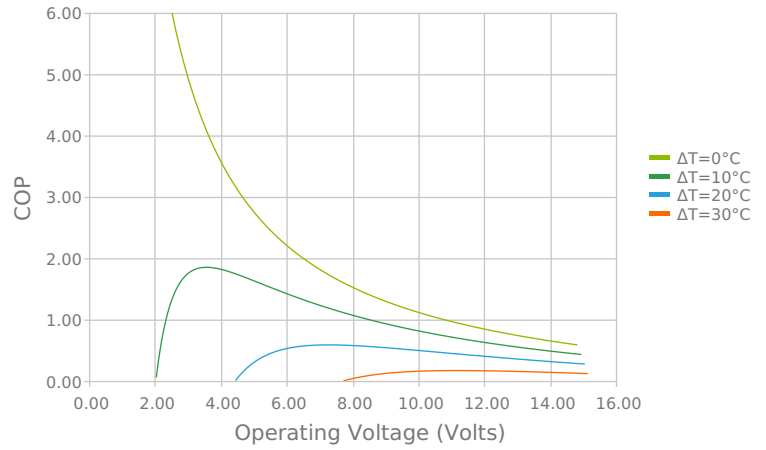
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



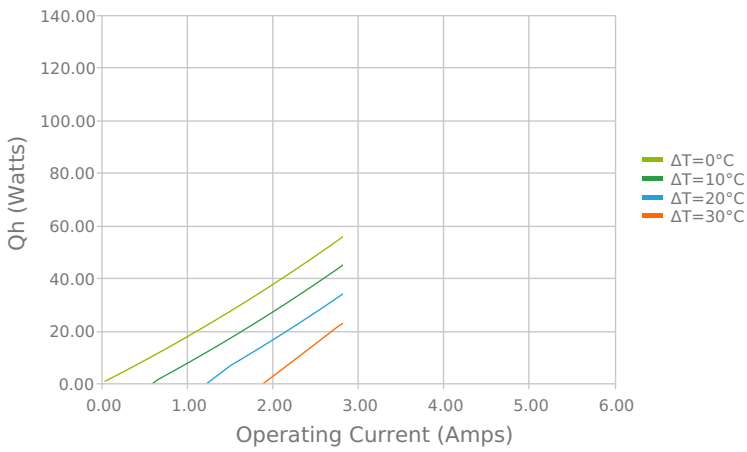
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{ambient} = 35^{\circ}\text{C}$



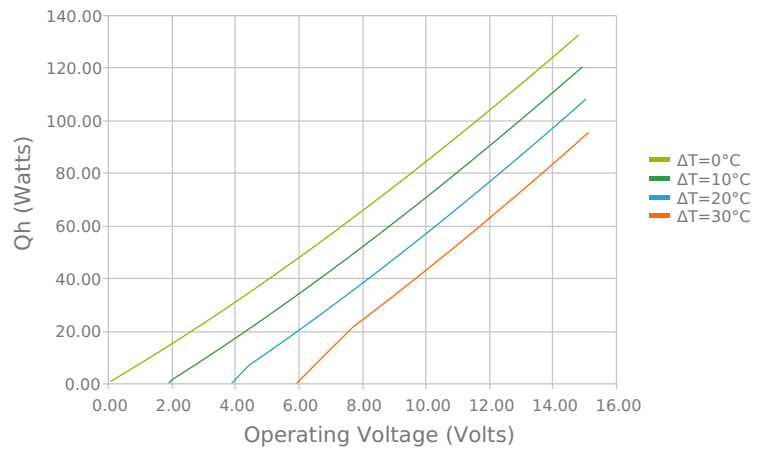
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{ambient} = 35^{\circ}\text{C}$



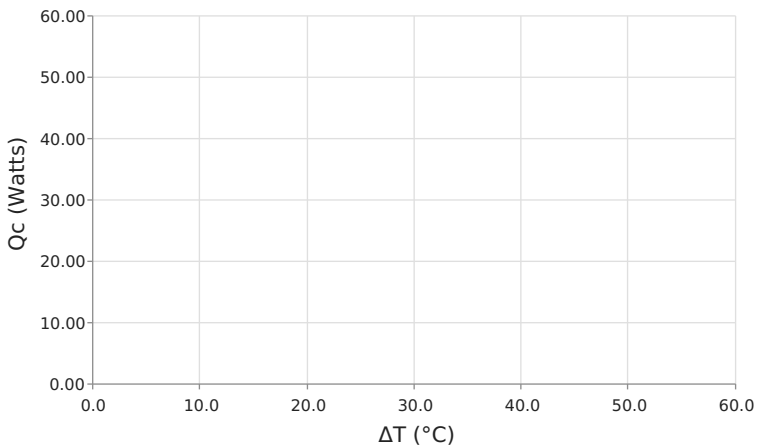
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
 $T_{ambient} = 35^{\circ}\text{C}$



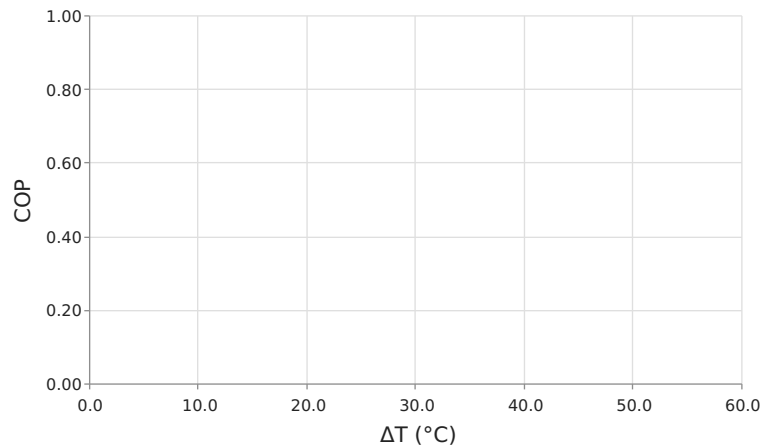
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
 $T_{ambient} = 35^{\circ}\text{C}$



Heat Pumped at Cold Side (Q_c)
 $V_{operating} = 12 \text{ Volts}$ | $I_{operating} = 4.68 \text{ Amps}$



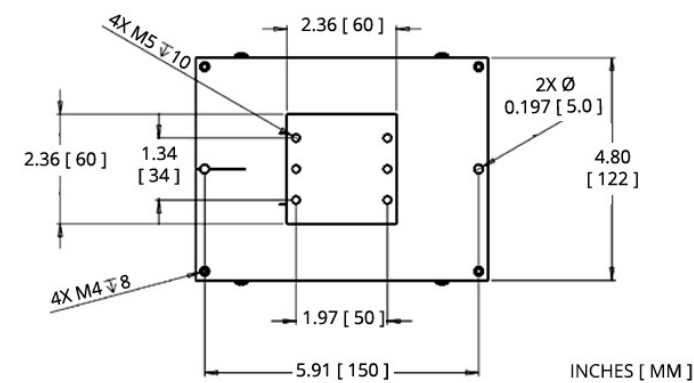
Coefficient of Performance (COP = Q_c/P_{in})
 $V_{operating} = 12 \text{ Volts}$ | $I_{operating} = 4.68 \text{ Amps}$



Specifications

Heat Transfer Mechanism, Cold Side	Direct - Conduction
Heat Transfer Mechanism, Hot Side	Air - Forced Convection
Operating Temperature Range	-10°C to 46°C
Supply Voltage	12.0 VDC nominal / 15.0 VDC maximum
Current Draw	6.1 A running / 7.0 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	1.20 kg
Panel Mounting	Flush Mount

Mounting Hole Location



Notes

- ¹For indoor use only
- ²Units are generally maintenance free, however occasionally it is recommended to clean the heat sinks and fans of debris. This is best done with compressed air.

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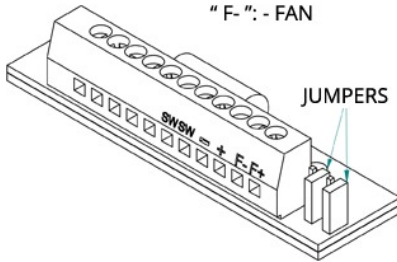
Revision: 00 Date: 06-01-2022

Print Date: 05-12-2025

Wiring Schematic

ELECTRICAL CONNECTIONS:

" + " : + TEM
" - " : - TEM
" F+ " : + FAN
" F- " : - FAN



To use a separate supply for TEMs and FANs: Mount jumpers to not short-cut the pin pairs.

To use a single supply for TEMs and FANs: Mount jumpers to short-cut the pin pairs.

Connect the unit to " + " & " - ".

Warning: Single supply not applicable in heating mode or with PWM-regulation.