

Tunnel Series Thermoelectric Cooler Assembly

The DA-033-12-02 is a thermoelectric based air conditioner designed to temperature control small chambers used in analytical and medical diagnostic instruments. The unique design offers premium fans pushing air across-high density heat sinks to minimize the number of air flow paths required to operate. The design utilizes custom thermoelectric modules to maximize cooling capacity with a high coefficient of performance. Moisture resistant insulation is used to keep condensation from penetrating the thermoelectric module cavity. The unit operates on DC and is designed for an indoor lab use environment. It has a maximum Q_c of 32 Watts when $\Delta T = 0$ and a maximum ΔT of 48 °C at $Q_c = 0$.

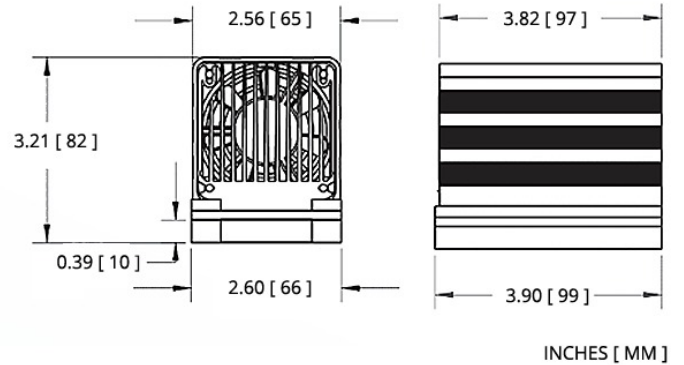


Features

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

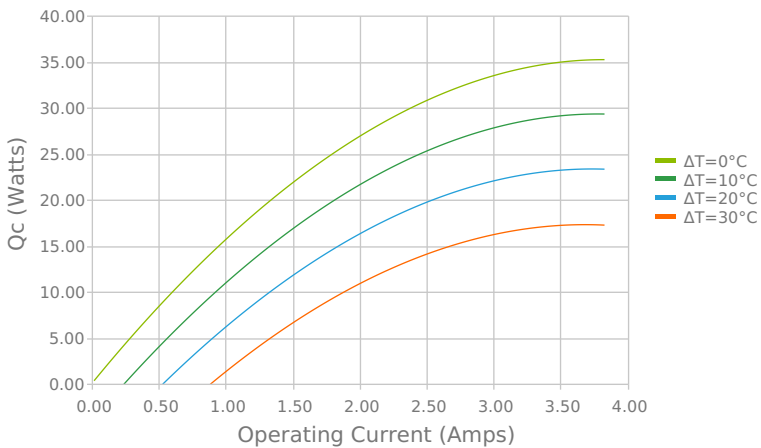
Applications

- Thermoelectric Coolers and Assemblies for Medical Applications
- Liquid Cooling Options for PET and SPECT Scanners
- Peltier Cooling for Refrigerated Centrifuges
- High-Performance Liquid Chromatography (HPLC)
- Thermal Management Solutions for Beverage Cooling
- Heating and Cooling for Liquid Chromatography Systems

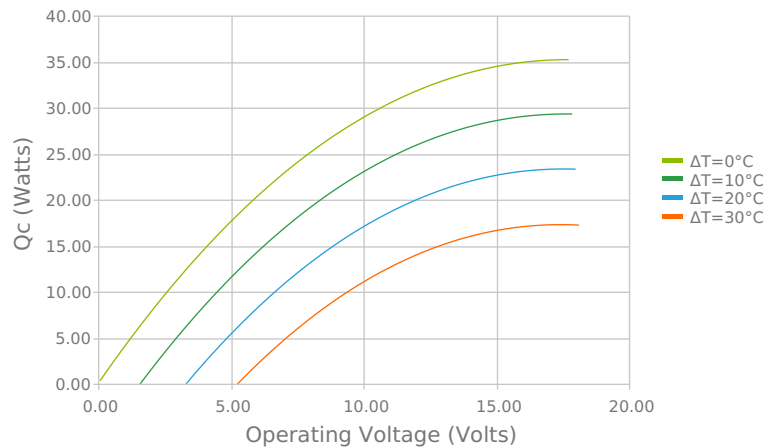


ELECTRICAL AND THERMAL PERFORMANCE

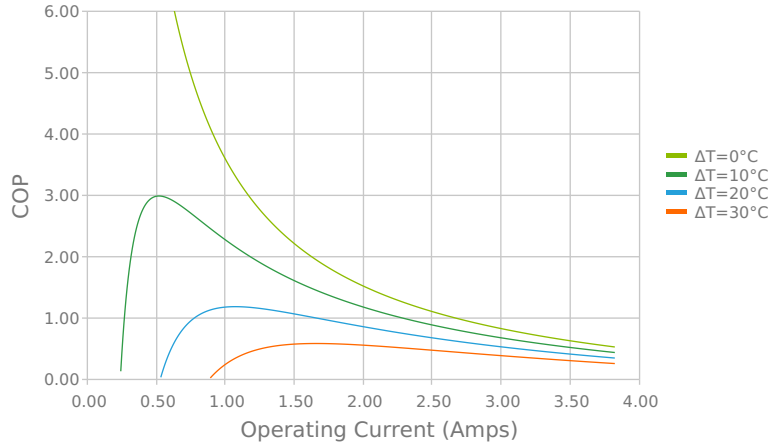
Heat Pumped at Cold Side (Q_c)
 $T_{ambient} = 35^\circ\text{C}$ | $T_{control} = 20^\circ\text{C}$



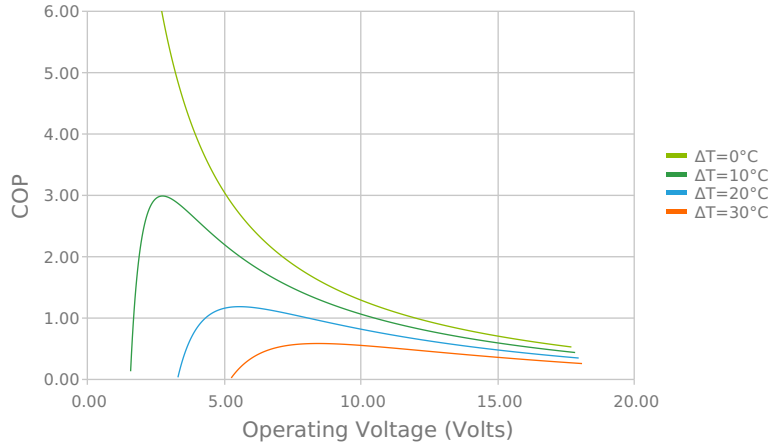
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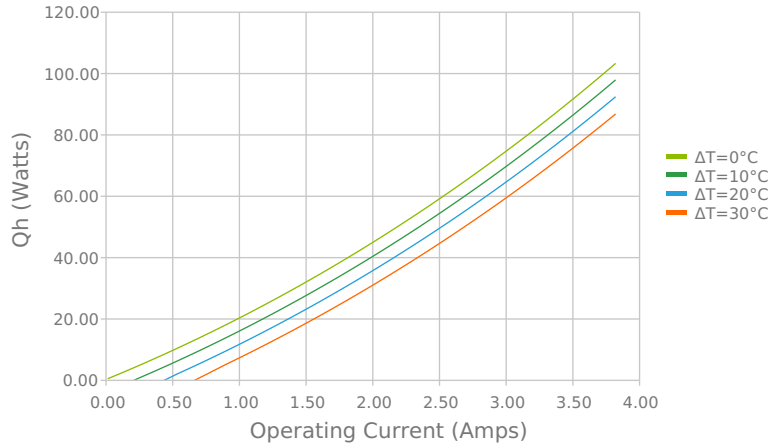
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



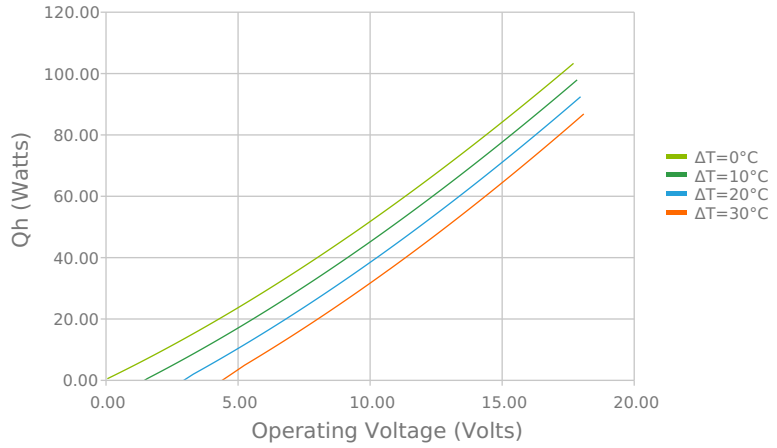
Coefficient of Performance (COP = Qc/Pin)
 Tambient = 35°C | Tcontrol = 20°C



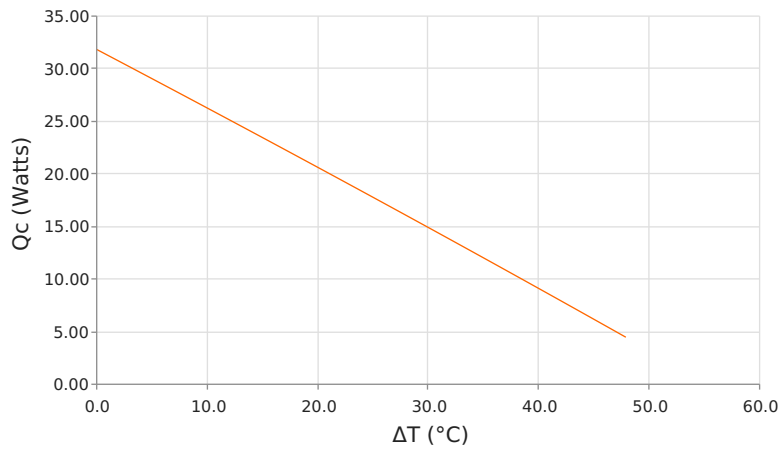
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



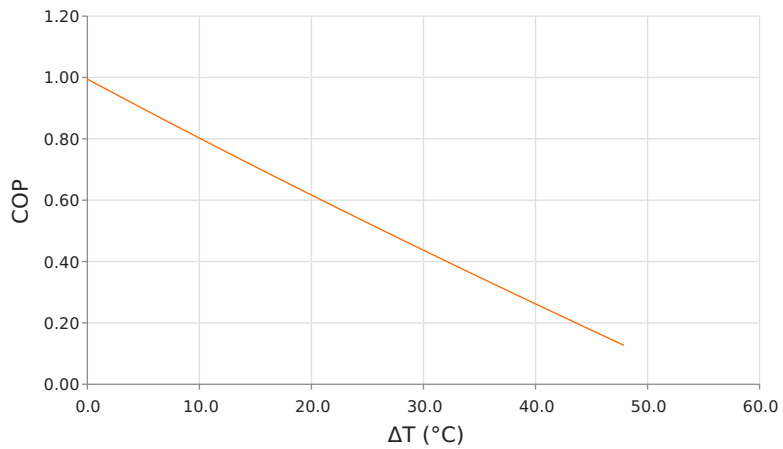
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Tambient = 35°C | Tcontrol = 20°C



Heat Pumped at Cold Side (Qc)
 Voperating = 12.03 Volts | Ioperating = 2.68 Amps



Coefficient of Performance (COP = Qc/Pin)
 Voperating = 12.03 Volts | Ioperating = 2.68 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

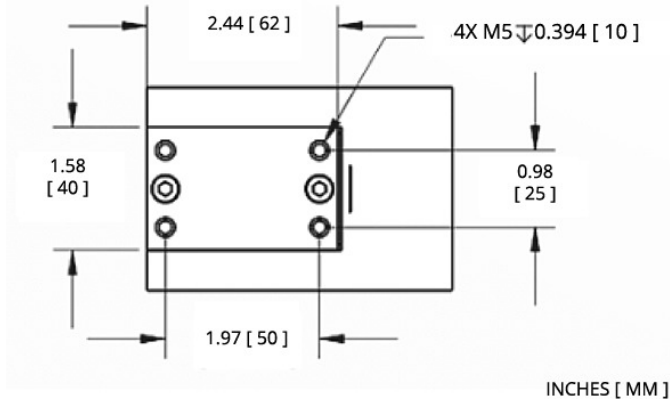
Fan MTBF

Weight

Panel Mounting

Direct - Conduction
Air - Forced Convection
-10°C to 45°C
12.0 VDC nominal / 14.7 VDC maximum
3.1 A running / 3.6 A startup
37.2 Watts
10%
No Testing
40,000 hours
0.54 kg
Flush Mount

MOUNTING HOLE LOCATION



WIRING SCHEMATIC

<p>Electrical Connections:</p> <p>"TEM +" : RED</p> <p>"TEM - " : BLACK</p> <p>" F+ " : +RED</p> <p>" F - " : - BLACK OR BLUE</p>

NOTES

¹For indoor use only

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