

Cascade Series Thermoelectric Cooler Assembly

The AAC-050-24-22 is a thermoelectric cooler assembly that offers dependable, compact performance by cooling objects via convection or conduction. Heat is absorbed and dissipated thru high density heat exchangers equipped with air ducted shrouds and brand name fans. The heat pumping action is created by thermoelectric modules that are custom designed multistage cascades to achieve a high temperature differential. Custom configurations are available, however MOQ applies. This product can produce up to 40% more cooling capacity at cold temperatures, surpassing standard product offerings with similar form factors.

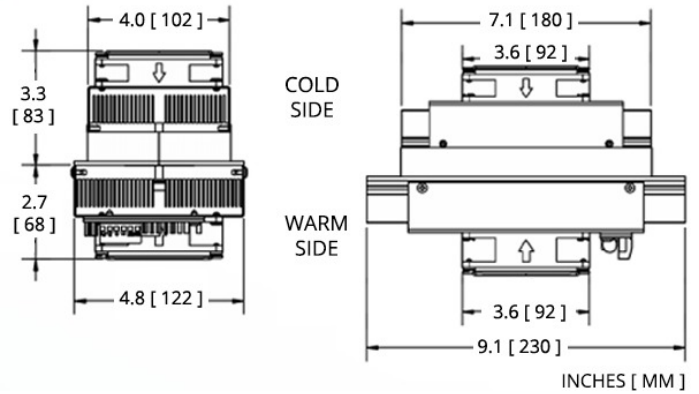


Features

- High heat pumping capacity at cold temperatures
- Precise temperature control
- Reliable solid-state operation
- Compact design

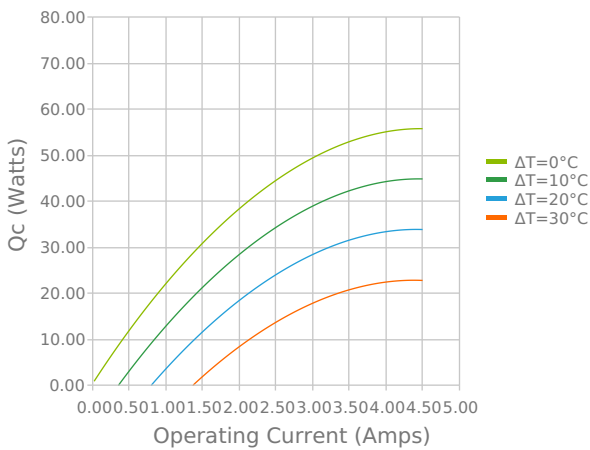
Applications

- Thermoelectric Cooling for CMOS Sensors
- Heads-Up Displays, Imaging Sensors

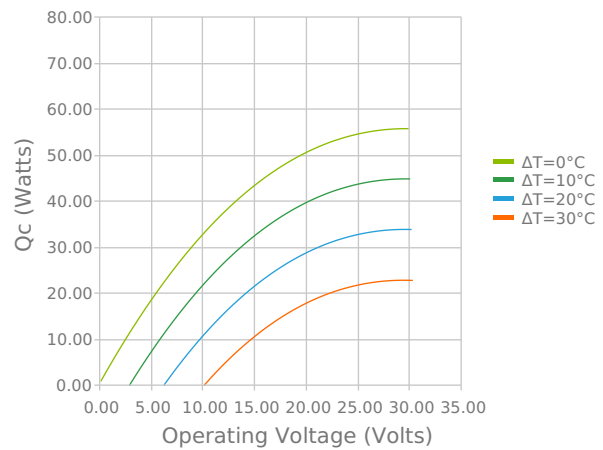


Electrical and Thermal Performance

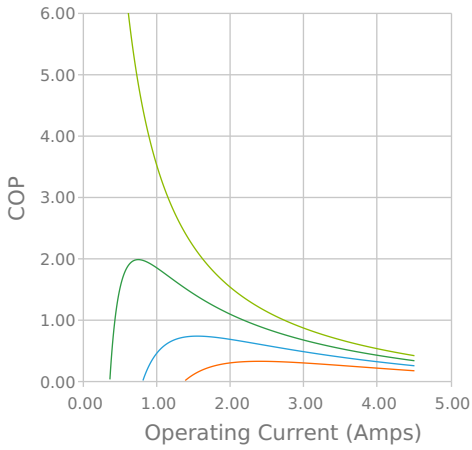
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



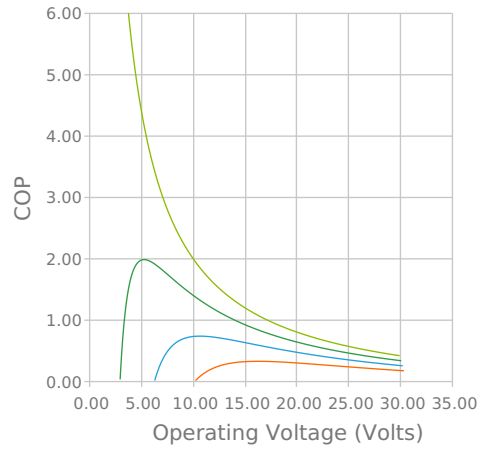
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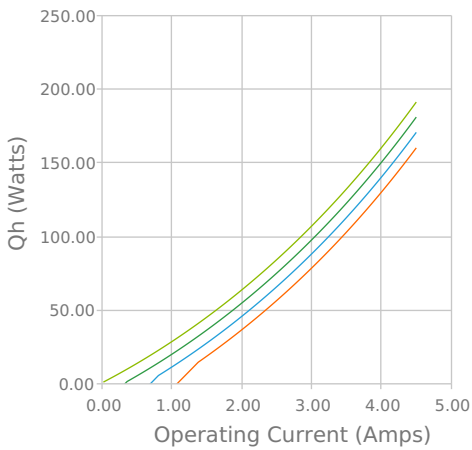
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{ambient} = 35^{\circ}C$



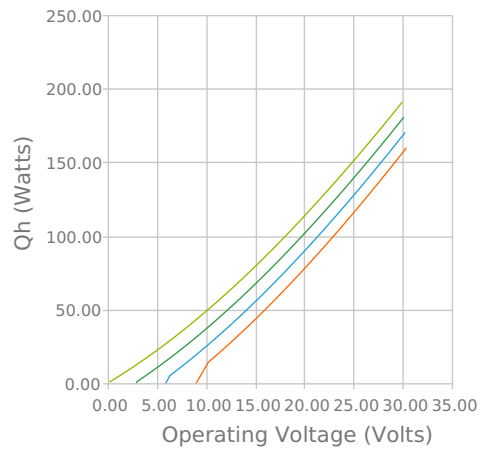
Coefficient of Performance (COP = Q_c/P_{in})
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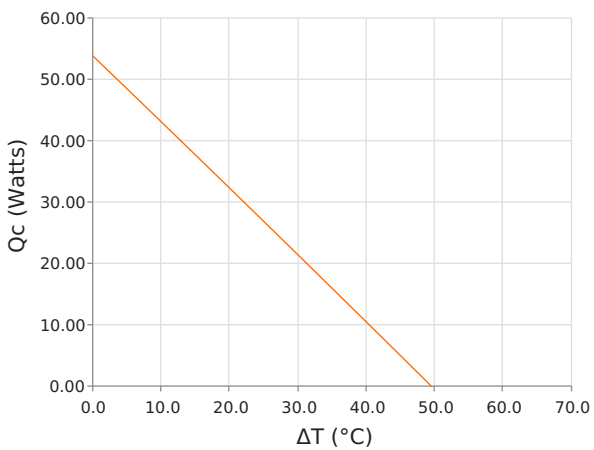
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{ambient} = 35^{\circ}C$



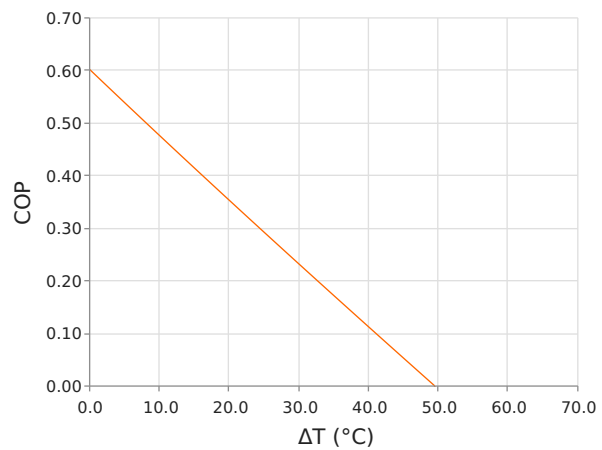
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{ambient} = 35^{\circ}C$



Heat Pumped at Cold Side (Q_c)
 $V_{operating} = 24$ Volts | $I_{operating} = 3.72$ Amps



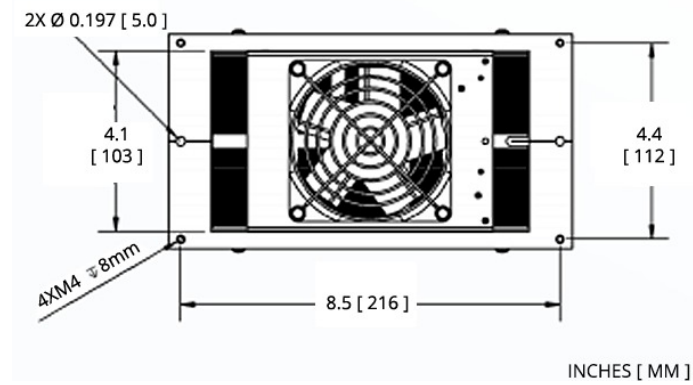
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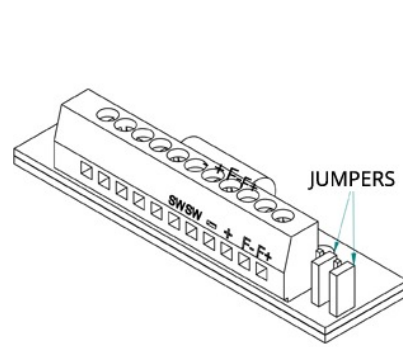
Specifications

Heat Transfer Mechanism, Cold Side	Air - Forced Convection
Heat Transfer Mechanism, Hot Side	Air - Forced Convection
Operating Temperature Range	-10°C to 47°C
Supply Voltage	24.0 VDC nominal / 30.0 VDC maximum
Current Draw	4.7 A running / 5.6 A startup
Power Supply	113.0 Watts
Performance Tolerance	10%
Hi-Pot Testing	No Testing
Fan MTBF	50000 hours
Over-Temp Thermostat (Hot and Cold Side Heat Sink)	75°C ±5°C (hot side heat sink)
Weight	2.70 kg
Panel Mounting	Through

Mounting Hole Location



Wiring Schematic



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

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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