

Outdoor Cooler Series Thermoelectric Cooler Assembly

The AA-230-24-D44 is an Air-to-Air thermoelectric cooler assembly that uses impingement flow to transfer heat. It offers dependable compact performance by cooling objects via convection. Heat is absorbed and dissipated through high density heat exchangers equipped with air ducted shrouds and brand name fans. The heat pumping action occurs from custom designed thermoelectric modules that achieve a high coefficient of performance (COP) to minimize power consumption. This model has been designed to pass rigorous Telcordia test requirements conducted by our customers such as earthquake resistance, salt, fog, wind-driven rain, high temperature exposure, and dust contaminants. This is due to the selection of world class components such as brand fans with the highest degree of environmental protection and lifetime guaranteed waterproof connectors heavy duty anodization on the high-density heat sinks overheat protection and double environmental seals for the thermoelectric modules.

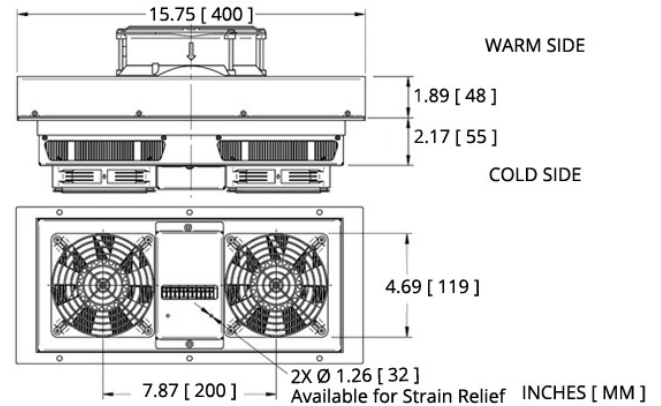


Features

- Wide operating temperature range from -40°C to +55°C
- Telcordia GR-487-CORE tested and verified by customers when integrated in telecom outdoor enclosures.
- Environmentally friendly solid-state operation
- No compressor or CFC refrigerants
- Optional bi-polar thermostatic control

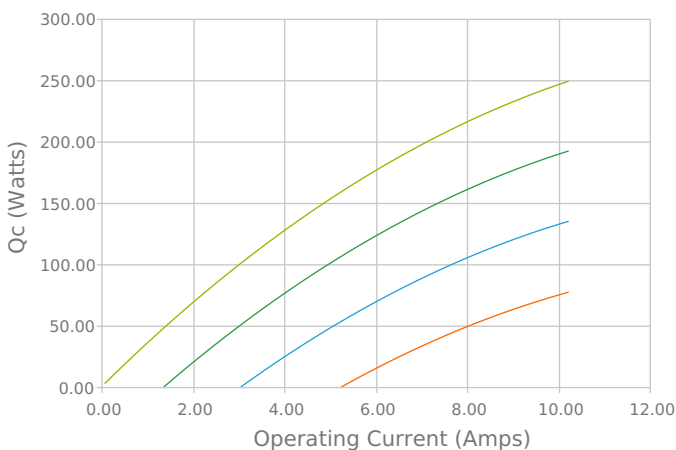
Applications

- Enclosure Cooling
- Cooling for Mobile Base Stations and Cell Towers
- Thermoelectric Cooling for Outdoor Kiosks
- Thermal Management Solutions for Beverage Cooling
- Energy Storage Systems

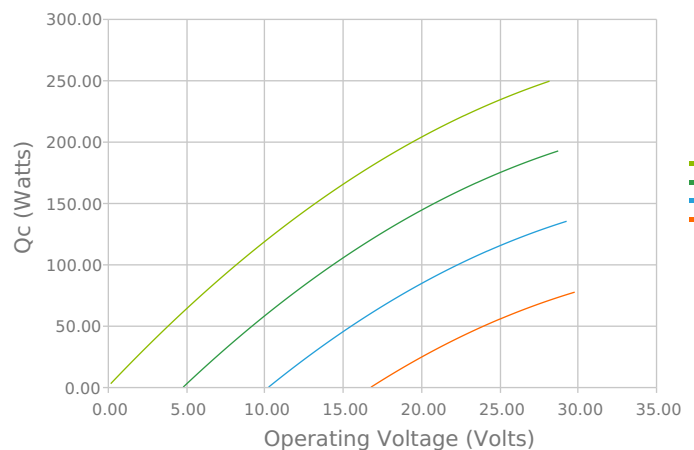


Electrical and Thermal Performance

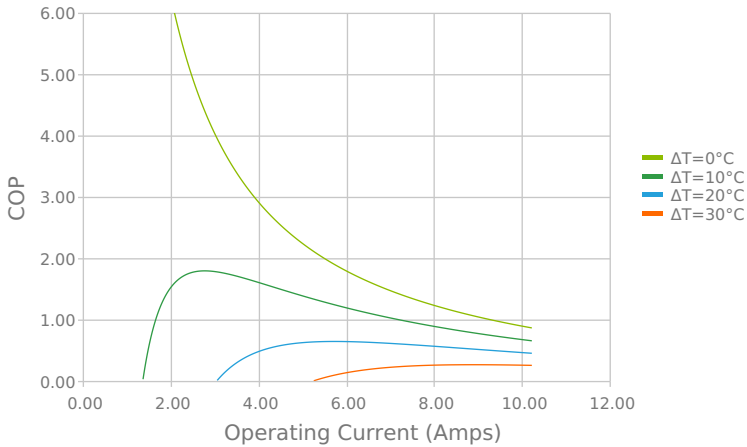
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



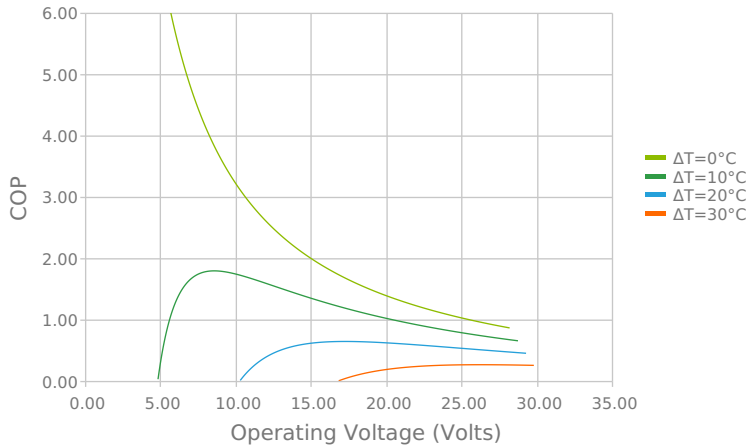
Heat Pumped at Cold Side (Q_c)
Tambient = 35°C



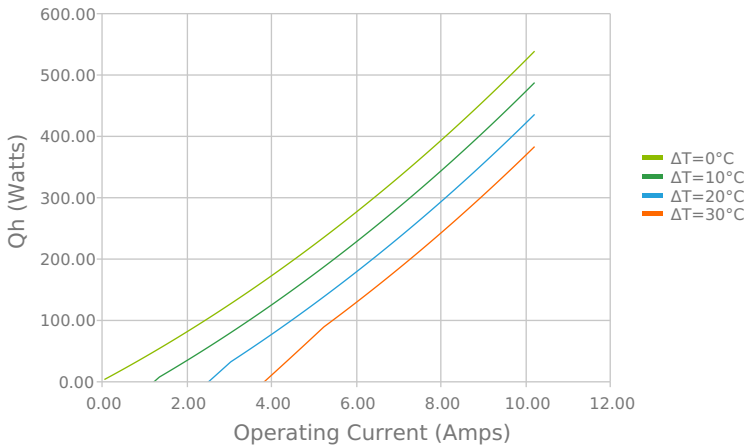
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{ambient} = 35^{\circ}C$



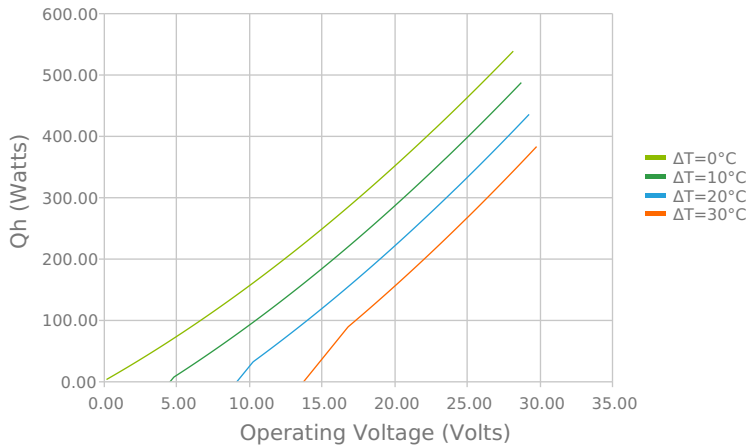
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{ambient} = 35^{\circ}C$



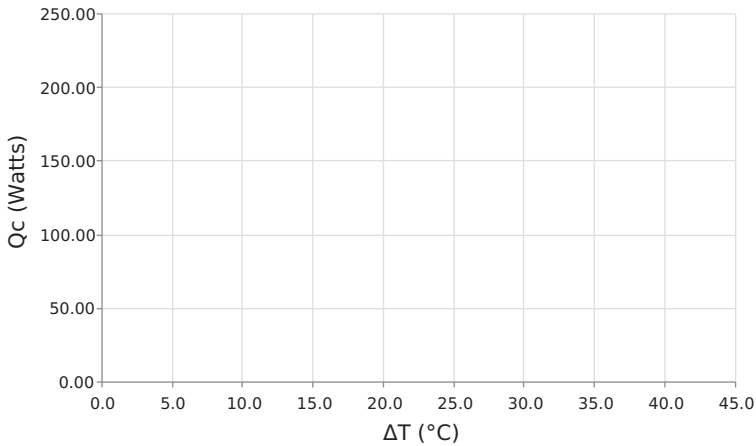
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{ambient} = 35^{\circ}C$



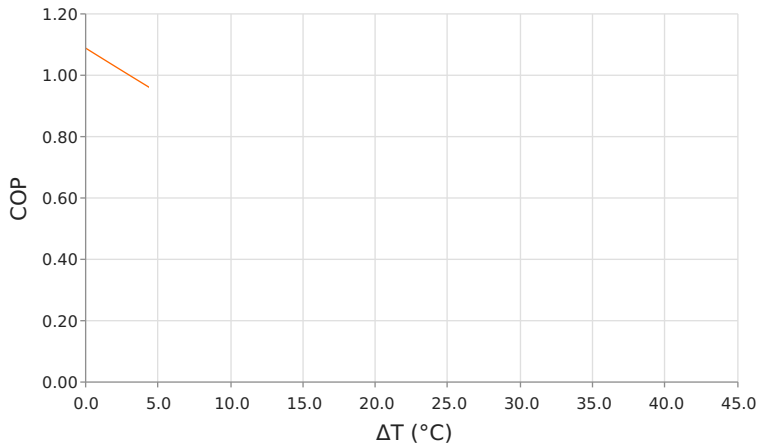
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{ambient} = 35^{\circ}C$



Heat Pumped at Cold Side (Q_c)
 $V_{operating} = 24 \text{ Volts}$ | $I_{operating} = 8.74 \text{ Amps}$



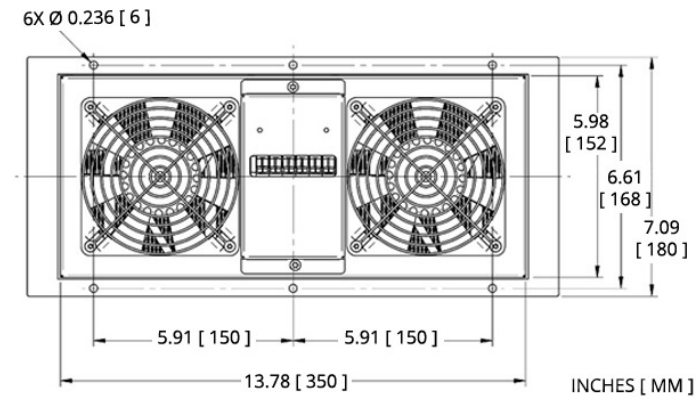
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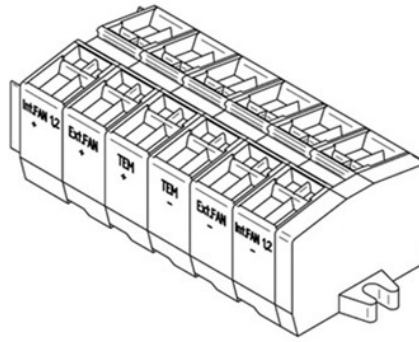
Specifications

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|--|-------------------------------------|
| Heat Transfer Mechanism, Cold Side | Air - Forced Convection |
| Heat Transfer Mechanism, Hot Side | Air - Forced Convection |
| Temperature Range (External Ambient) ¹ | -40°C to 55°C |
| Temperature Range (Internal Enclosure) | -20°C to 55°C |
| Supply Voltage | 24.0 VDC nominal / 28.0 VDC maximum |
| Current Draw | 12.1 A running / 15.1 A startup |
| Power Supply | 290.4 Watts |
| Performance Tolerance | 10% |
| Hi-Pot Testing | 707 VDC |
| Fan MTBF | 70000 hours |
| Heating ² | 250 W |
| Over-Temp Thermostat (Hot and Cold Side Heat Sink) | Optional |
| Sound Level (1 m distance) | 65 dBA |
| Degree of Protection (Unit Internal Side) | IP54 |
| Degree of Protection (Unit External Side) ³ | IP54 |
| Weight | 6.50 kg |
| Panel Mounting | Through |

Mounting Hole Location



Wiring Schematic



ELECTRICAL CONNECTIONS:
(Cold Side)

Int. FAN 1,2 +
Ext. FAN +
TEM +
TEM -
Int. FAN 1,2 -
Ext. FAN -

Warning: Do not reverse current or use PWM-regulation on fan supply.

Notes

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| ¹ Controller function shall not operate the external fan during heating mode. |
| ² Heating capacity is rated at external temperature of -40°C, nominal voltage, and dT = -45°C. |
| ³ The highest environmental protection level NEMA 4 (IP55) requires an external shroud and is defined as the protection level for the enclosure. |

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